VSP 168HD

User Manual

- Manual #: RGB-RD-UM-V168HD E001
- Revision: V1.1

RGBlink

VSP 168HD·User Manual

Thank you for choosing our products!
In order to allow you to learn how to use the video processor quickly, we bring you the detailed user manual. You can read the introduction and directions before using the video processor, please read all the information we provide carefully to use our products correctly.

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Operators Safety Summary

The general safety information in this summary is for operating personnel.

Do Not Remove Covers or Panels

There are no user-serviceable parts within the unit. Removal of the top cover will expose dangerous voltages. To avoid personal injury, do not remove the top cover. Do not operate the unit without the cover installed.

Power Source

This product is intended to operate from a power source that will not apply more than 230 volts rms between the supply conductors or between both supply conductor and ground. A protective ground connection by way of grounding conductor in the power cord is essential for safe operation.

Grounding the Product

This product is grounded through the grounding conductor of the power cord. To avoid electrical shock, plug the power cord into a properly wired receptacle before connecting to the product input or output terminals. A protective-ground connection by way of the grounding conductor in the power cord is essential for safe operation.

Use the Proper Power Cord

Use only the power cord and connector specified for your product. Use only a power cord that is in good condition. Refer cord and connector changes to qualified service personnel.

Use the Proper Fuse

To avoid fire hazard, use only the fuse having identical type, voltage rating, and current rating characteristics. Refer fuse replacement to qualified service personnel.

Do Not Operate in Explosive Atmospheres

To avoid explosion, do not operate this product in an explosive atmosphere.

Terms in This Manual and Equipment Marking

WARNING

Highlight an operating procedure, practice, condition, statement, etc, which, if not strictly observed, could result in injury or death of personnel.

Note

Highlights an essential operating procedure, condition or statement.

CAUTION

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Amendment Records

The table below lists the changes to the Video Processor User Manual.

Format	Time	ECO#	Description	Principal
V1.0	2014-05-06	0000#	Release	Vira
V1.1	2014-09-28	0001#	1. Update the test pattern description in “Menu Orientation”. 2. Update the menu tree.	Vira

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1. Brief Introduction

This chapter is designed to introduce you to the VSP 168HD User Manual. Areas to be covered are:

- Chapter Structure
- How to Use The Manual
- Terms and Definitions
- System Overview
- Application Questions

Chapter Structure

The following chapters provide instructions for all aspects of VSP 168HD operations.

Chapter 1 Brief Introduction

Chapter 2 Hardware Orientation

Chapter 3 Hardware Installation

Chapter 4 Menu Orientation

Chapter 5 Communication Software Guideline

Chapter 6 System Setup and Operations

Chapter 7 Common Questions and Solution

Appendix A Specification

Appendix B Contact Information

Appendix C Software Upgrade

How to Use the Manual

Followings are important tips for streamlining your use of this User's Manual in its electronic "PDF" form.

Navigation

Use Acrobat Reader's "bookmarks" to navigate to the desired location. All chapter files have the same bookmark structure for instant navigation to any section. Please note:

- Extensive hyperlinks are provided within the chapters.
- Use Acrobat's "**Go to Previous View**" and "**Return to next View**" buttons to trace your complete navigational path.

- Use the "**Previous Page**" and "**Next Page**" buttons to go to the previous or next page within a file.
- Use Acrobat's extensive search capabilities, such as the "**Find**" tool and "**Search Index**" tool to perform comprehensive searches as required.

Table of Contents and Index

Use the Table of Contents bookmarks to navigate a desired topic. Click any item to instantly jump to that section of the guide. You can also use the **Index** to jump to specific topics within a chapter. Each page number in the **Index** is a hyperlink.

General Operations

To ensure trouble-free operation, please follow all procedures as listed below:

- For detailed installation instructions, refer to chapter 3 "Hardware Installation" on page 33.
- For communication software control guide, refer to Chapter 5, "Communication Software Control Guide" on page 51.
- For system setup and operations, refer to Chapter 6, "System Setup and Operations" on page 74.

Should you have any questions regarding the installation or operation of VSP 168HD, please consult with the factory. Refer to Appendix B on page 98 for contact information.

Term and Definitions

The following terms and definitions are used throughout this guide.

- **“ASCII”:** American Standard for Information Interchange. The standard code consisting of 7-bit coded characters (8 bits including parity check) used to exchange information between data processing systems, data communication systems, and associated equipment. The ASCII set contains control characters and graphic characters.

- **“Aspect ratio”:** The relationship of the horizontal dimension to the vertical dimension of an image. In viewing screens, standard TV is 4:3, or 1.33:1; HDTV is 16:9, or 1.78:1. Sometimes the “:1” is implicit, making TV = 1.33 and HDTV = 1.78.

- **“AV”:** Audio visual or audio video.

- A **“Background”** is an unscaled source, typically originating from a computer. A background source appears at the system’s lowest priority — visually in back of all other sources.

- **“Baudrate”：** Named of J.M.E. Baudot, the inventor of the Baudot telegraph code. The number of the electrical oscillations per second, called baud rate. Related to, but not the same as, transfer rate in bits per second (bps).

- **“Blackburst”:** The video waveform without the video elements. It includes the vertical sync, horizontal sync, and the chroma burst information. Blackburst is used to synchronize video equipment to align the video output. One signal is normally used to set up an entire video system or facility. Sometimes it is called House sync.

- **“BNC”:** Bayonet Neill-Concelman. A cable connector used extensively in television and named for its inventors. A cylindrical bayonet connector that operates with a twist-locking motion. To make the connection, align the two curved grooves in the collar of the male connector with the two projections on the outside of the female collar, push, and twist. This allows the connector to lock into place without tools.

- **“Brightness”:** Usually refers to the amount or intensity of video light produced on a screen without regard to color. Sometimes called “black level.

1. Brief Introduction

Terms and Definitions

- "**CAT 5**"**:** Category 5. Describes the network cabling standard that consists of four unshielded twisted pairs of copper wire terminated by RJ-45 connectors. CAT 5 cabling supports data rates up to 100 Mbps. CAT 5 is based on the EIA/TIA 568 Commercial Building Telecommunications Wiring Standard.

- **"Color bars":** A standard test pattern of several basic colors (white, yellow, cyan, green, magenta, red, blue, and black) as a reference for system alignment and testing. In NTSC video, the most commonly.

- Used color bars are the SMPTE standard color bars. In PAL video, the most commonly used color bars are eight full field bars. In the computer, the most commonly used color bars are two rows of reversed color bars.

- **"Color burst":** In color TV systems, a burst of sub carrier frequency located on the back porch of the composite video signal. This serves as a color synchronizing signal to establish a frequency and phase reference for the chroma signal. Color burst is 3.58 MHz for NTSC and 4.43 MHz for PAL.

- **"Color temperature":** The color quality, expressed in degrees Kelvin (K), of a light source. The higher the color temperature, the bluer the light. The lower the temperature, the redder the light. Benchmark color temperature for the A/V industry includes 5000°K, 6500°K, and 9000°K.

- **"Contrast ratio":** The radio of the high light output level divided by the low light output level. In theory, the contrast radio of the television system should be at least 100:1, if not 300:1. In reality, there are several limitations. In the CRT, light from adjacent elements contaminate the area of each element. Room ambient light will contaminate the light emitted from the CRT. Well-controlled viewing conditions should yield a practical contrast ratio of 30:1 to 50:1.

- **"DVI":** Digital Visual Interface. The digital video connectivity standard that was developed by DDWG (Digital Display Work Group). This connection standard offers two different connectors: one with 24 pins that handles digital video signals only, and one with 29 pins that handles both digital and analog video.

- **"EDID":** Extended Display Identification Data – EDID is a data structure used to communicate video display information, including native

resolution and vertical interval refresh rate requirements, to a source device. The source device will then output the optimal video format for the display based on the provided EDID data, ensuring proper video image quality. This communication takes place over the DDC – Display Data Channel.

- **“Ethernet”:** A Local Area Network (LAN) standard officially known as IEEE 802.3. Ethernet and other LAN technologies are used for interconnecting computers, printers, workstations, terminals, servers, etc. within the same building or campus. Ethernet operates over twisted pair and over coaxial cable at speeds starting at 10Mbps. For LAN interconnectivity, Ethernet is physical link and data link protocol reflecting the two lowest layers of the OSI Reference Model.

- **“Frame”:** In interlaced video, a frame is one complete picture. A video frame is made up of two fields, or two sets of interlaced lines. In a film, a frame is one still picture of a series that makes up a motion picture.

- **“Gamma”:** The light output of a CRT is not linear with respect to the voltage input. The difference between what you should have and what is actually output is known as gamma.

- **“HDMI” - High – Definition Multimedia Interface:** An interface used primarily in consumer electronics for the transmission of uncompressed high definition video, up to 8 channels of audio, and control signals, over a single cable. HDMI is the de facto standard for HDTV displays, Blu-ray Disc players, and other HDTV electronics. Introduced in 2003, the HDMI specification has gone through several revisions.

- **“HDSDI”:** The high-definition version of SDI specified in SMPTE-292M. This signal standard transmits audio and video with 10 bit depth and 4:2:2 color quantization over a single coaxial cable with a data rate of 1.485 Gbit/second. Multiple video resolutions exist including progressive 1280x720 and interlaced 1920x1080 resolutions. Up to 32 audio signals are carried in the ancillary data.

- **“JPEG” (Joint photographic Expects Group):** Commonly used method of loss compression for photographic images using a discreet cosine transfer function. The degree of compression can be adjusted, allowing a selectable tradeoff between storage size and image quality. JPEG typically achieves 10:1 compression with little perceptible loss in image quality. Produces blocking artifacts.

1. Brief Introduction

Terms and Definitions

- **"MPEG":** Motion Picture Expect Group. A standard committee under the auspices of the International Standards Organization working on algorithm standards that allows digital compression, storage and transmission of moving image information such as motion video, CD-quality audio, and control data at CD-ROM bandwidth. The MPEG algorithm provides inter-frame compression of video images and can have an effective compression rate of 100:1 to 200:1.

- **"NTSC":** The color video standard used in North America and some other parts of the world created by the National Television Standards Committee in the 1950s. A color signal must be compatible with black-and-white TV sets. NTSC utilizes an interlaced video signals, 525 lines of resolution with a refresh rate of 60 fields per second (60 Hz). Each frame is comprised of two fields of 262.5 lines each, running at an effective rate of 30 frames per second.

- **"PAL":** Phase Alternate Line. A television standard in which the phase of the color carrier is alternated from line to line. It takes four full pictures (8 fields) for the color-to-horizontal phase relationship to return to the reference point. This alternation helps cancel out phase errors. For this reason, the hue control is not needed on a PAL TV set. PAL, in many transmission forms, is widely used in Western Europe, Australia, Africa, the Middle East, and Micronesia. PAL uses 625-line, 50-filed (25 fps) composite color transmission system.

- **"Operator":** Refers to the person who uses the system.

- **"PIP":** Picture-in-Picture. A small picture within a larger picture created by scaling down one of the images to make it smaller. Each picture requires a separate video source such as a camera, VCR, or computer. Other forms of PIP displays include Picture-by-Picture (PBP) and Picture-with-Picture (PWP), which are commonly used with 16:9 aspect display devices. PBP and PWP image formats require a separate scaler for each video window.

- **"Polarity":** The positive and negative orientation of a signal. Polarity usually refers to the direction or a level with respect to a reference (e.g. positive sync polarity means that sync occurs when the signal is going in the positive direction).

- **"RJ-45":** Registered Jack-45. A connector similar to a telephone connector that holds up to eight wires used for connecting Ethernet devices.

1. Brief Introduction

Terms and Definitions

- "**RS-232":** An Electronic Industries Association (EIA) serial digital interface standard specifying the characteristics of the communication path between two devices using either DB-9 or DB-25 connectors. This standard is used for relatively short-range communication and does not specify balanced control lines. RS-232 is a serial control standard with a set number of conductors, data rate, word length, and type of connector to be used. The standard specifies component connection standards with regard to the computer interface. It is also called RS-232-C, which is the third version of the RS-232 standard, and is functionally identical to the CCITT V.24 standard.

- **"Saturation":** Chroma, chroma gain. The intensity of the color, or the extent to which a given color in any image is free from white. The less white in a color, the truer the color or the greater its saturation. On a display device, the color control adjusts the saturation. Not to be confused with the brightness, saturation is the amount of pigment in a color, and not the intensity. Low saturation is like adding white to the color. For example, a low-saturated red looks pink.

- **"Scaling":** A conversion of a video or computer graphic signal from a starting resolution to a new resolution. Scaling from one resolution to another is typically done to optimize the signal for input to an image processor, transmission path or to improve its quality when presented on a particular display.

- **"SDI":** Serial Digital Interface. The standard based on a 270 Mbps transfer rate. This is a 10-bit, scrambled, polarity independent interface with common scrambling for both component ITU-R 601 and composite digital video and four channels of (embedded) digital audio.

- **"Seamless Switching":** A feature found on many video switchers. This feature causes the switcher to wait until the vertical interval to switch. This avoids a glitch (temporary scrambling) which normally is seen when switching between sources.

- **"SMPTE":** Society of Motion Picture and Television Engineers. A global organization, based in the United States that sets standards for base band visual communications. This includes film as well as video and television standards.

- **"S-Video":** A composite video signal separated into the luma ("Y" is for luma, or black and white information; brightness) and the chroma ("C" is an abbreviation for chroma, or color information).

1. Brief Introduction

Terms and Definitions

- **“Sync”:** Synchronization. In video, sync is a means of controlling the timing of an event with respect to other events. This is accomplished with timing pulses to insure that each step in a process occurs at the correct time. For example, horizontal sync determines exactly when to begin each horizontal scan line. Vertical sync determines when the image is to be refreshed to start a new field or frame. There are many other types of sync in video system. (Also known as “sync signal” or “sync pulse.”)

- **“TCP/IP”:** Transmission Control Protocol/Internet Protocol. The communication protocol of the Internet. Computers and devices with direct access to the Internet are provided with a copy of the TCP/IP program to allow them to send and receive information in an understandable form.

- **“USB”:** Universal Serial Bus. USB was developed by seven PC and telecom industry leaders (Compaq, DEC, IBM, Intel, Microsoft, NEC, and Northern Telecom). The goal was easy plug-and-play expansion outside the box, requiring no additional circuit cards. Up to 127 external computer devices may be added through a USB hub, which may be conveniently located in a keyboard or monitor. USB devices can be attached or detached without removing computer power. The number of devices being designed for USB continues to grow, from keyboards, mice, and printers to scanners, digital cameras, and ZIP drives.

- **“VESA”:** Video Electronics Standards Association. A nonprofit number organization dedicated to facilitating and promoting personal computer graphics through improved standards for the benefit of the end-user. www.vesa.org

- **“VGA”:** Video Graphics Array. Introduced by IBM in 1987, VGA is an analog signal with TTL level separate horizontal and vertical sync. The video outputs to a 15-pin HD connector and has a horizontal scan frequency of 31.5 kHz and vertical frequency of 70 Hz (Mode 1, 2) and 60 Hz (Mode 3). The signal is non-interlaced in modes 1, 2, and 3 and interlaced when using the 8514/A card (35.5 kHz, 86 Hz) in mode 4. It has a pixel by line resolution of 640×480 with a color palette of 16 bits and 256,000 colors.

- **“YCrCb”:** Used to describe the color space for interlaced component video.

1. Brief Introduction

Terms and Definitions

- **“YPbPr”:** Used to describe the color space for progressive-scan (non-interlaced) component video.

System Overview

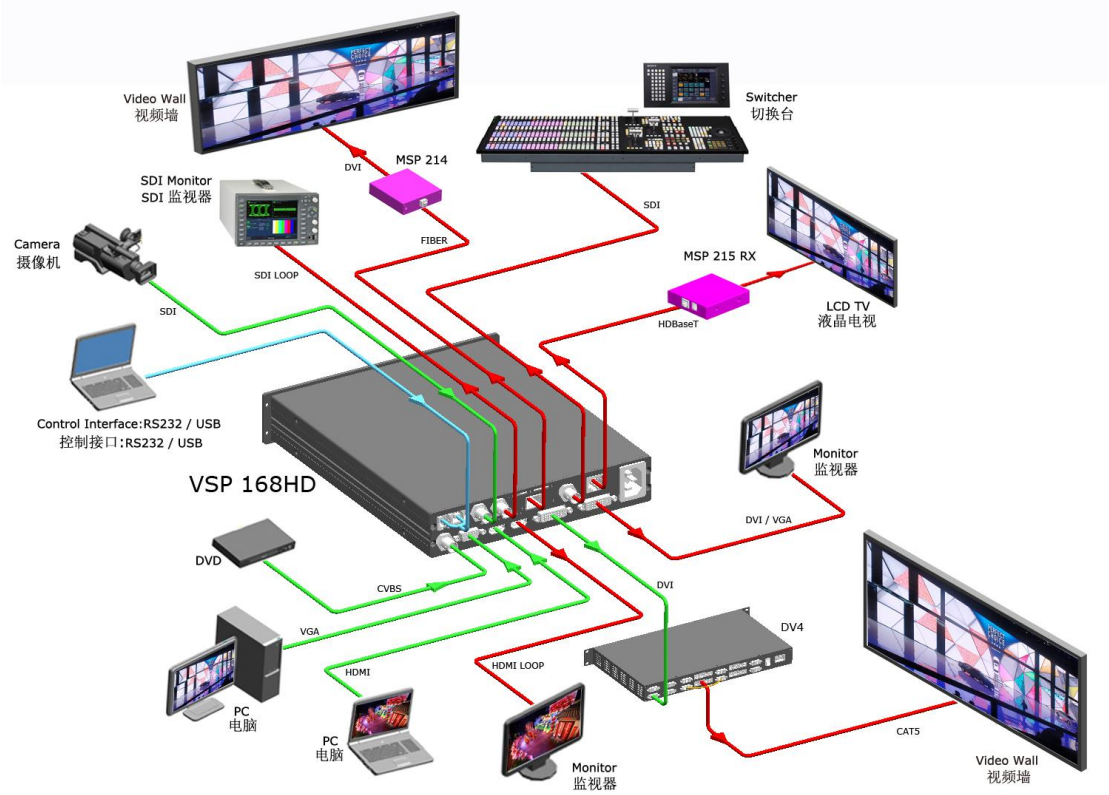
VSP 168HD is a 4 inputs seamless switcher and scaler. VSP 168HD supports all common video and graphic inputs, including CVBS, VGA, DVI, SDI (Option). VSP 168HD meets high end presentation requirement as its qualified image quality and advanced video processing ability, take multiple cascade mapping for example.

VSP 168HD supports following main functions: max output resolution up to 2048×1152 or 2560×816, quick user config scale operation, seamless switching for the inputs, auto input detect, multiple cascade mapping.

In addition, VSP 168HD use fiber and HDBaseT output interface, and connect to LED Display via extender, which is especially suitable for the applications that need high quality, long distance transmission and high resolution image. VSP 168HD supports RS232 control and USB port upgrade. And through embedded high quality image processing functions, and format conversion function, VSP 168HD provides the high stability of working hours.

Application Questions

RGBlink offers solutions to demand technical problems. Any application questions, or required further information, please contact with our Customer Support Engineers. Refer to Appendix B for contact details.



2. Hardware Orientation

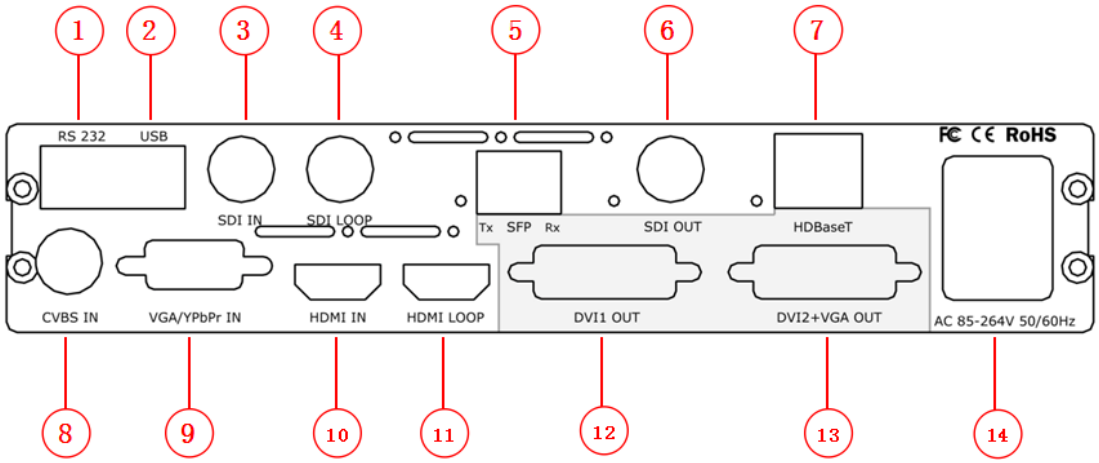
In This Chapter

This chapter provides detailed information about the VSP 168HD hardware. The following topics are discussed:

- VSP 168HD Back Panel
- VSP 168HD Front Panel

VSP 168HD Back Panel

The figure below illustrates the professional interface and control signals of VSP 168HD back panel.



NO	INTERFACE	NO	INTERFACE
1	RS232 Interface	8	CVBS Input BNC port
2	USB Interface	9	VGA Input DB15 port
3	3G-SDI input BNC CVBS port	10	HDMI Input
4	SDI Loop Out	11	HDMI Loop Out
5	Fiber Output	12	DVI Output DVI-I
6	SDI Output	13	DVI+VGA DVI-I Output
7	HDBaseT Output RJ45 port	14	Power

CONT Interface

1: RS232 Interface

Used for connect the windows control program.

2: USB Interface

Used for device upgrade.

INPUT Interface

2. Hardware Orientation

VSP 168HD Back Panel

It includes 1 3G-SDI input (SDI module), 1 CVBS input by BNC port), 1 HDMI (compatible with DVI), 1 VGA input by DB15 interface (compatible with YPbPr).

3: 3G-SDI Input

SDI input, input video signal from HD camera and radio processing equipment, connect SDI interface via 75 ohms impedance BNC port.

4: SDI Loop Out

SDI loop out. Connect to the SDI input of the next level VSP 168HD or the device with SDI input.

8: CVBS Input

CVBS input, input standard video signal from players, cameras etc., supported resolution 480i and 576i via BNC. Supported standards include: PAL, NTSC and SECAM.

9: VGA Input

VGA input, input the video signal from HD player and Computer, etc. compatible with YPbPr signal, input signal via the DB15 interface.

10: HDMI Input

HDMI input interface. Input the image signal from computer.

11: HDMI Loop Out

HDMI Loop Out. Connect to the HDMI input of the next level VSP 168HD or the device with HDMI input.

OUTPUT

5: Fiber Output

LC interface, use single mode twin-core fiber or multimode twin-core fiber. Connect one end of the fiber cable to LC interface, and the other end to fiber input interface of MSP 214 extender.

6: SDI Output

Connect to the device with SDI input.

7: HDBaseT Output

RJ45 interface. Connect one end of the CAT5e or CAT6 cable to RJ45 interface, and the other end to HDBaseT input interface of MSP 215 extender.

12: DVI Output

Connect to the monitor or LED screen with DVI interface.

(This DVI connector does not support hot-plugging).

13: DVI +VGA DVI Output

DVI +VGA output via DVI connector connect to the monitor or LED display with DVI interface. (This DVI connector does not support hot-plugging).

DVI +VGA, VGA output connector can be connected to monitor or projector which has VGA interface.

Note

Via adapter, can connect with DVI-based or VGA-based equipment, and via

DVI to VGA adapter, can output VGA only.

Switch and Power

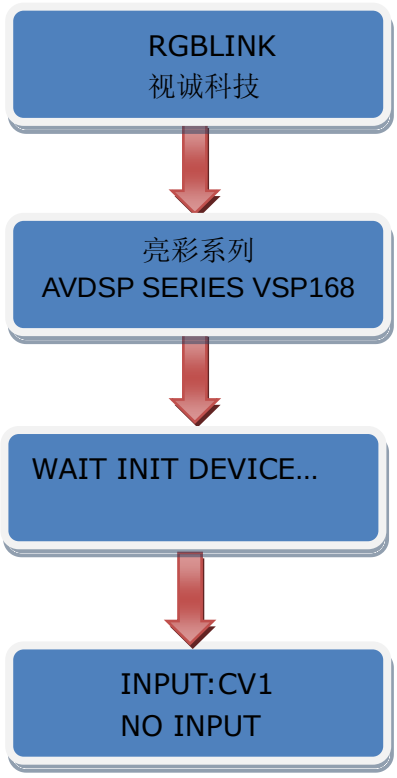
14：Power

AC 85-264V 3.8A 50/60Hz IEC-3 Power Interface.

VSP 168HD Front Panel

Insert the power cord, LCD module on the front panel will show RGBlink and go into self verification before it load last setting and send processed image to the target monitor. For the first setup, CV1 input is default source. With front panel keyboard, user can operate VSP 168HD through the menus on LCD panel.

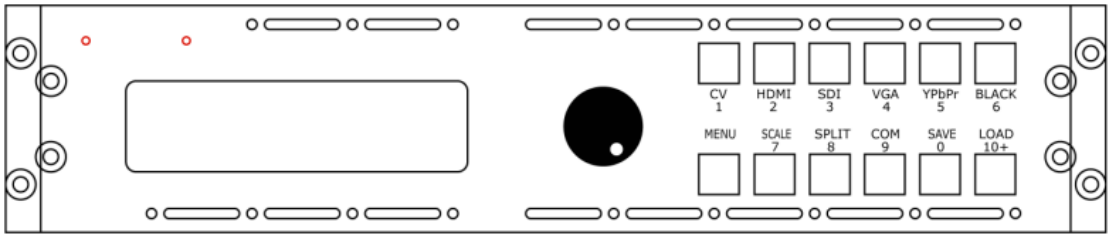
VSP 168HD front panel as shown in figure:



2. Hardware Orientation

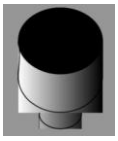
VSP 168HD Front Panel

VSP 168HD front panel is as following:



LCD Panel

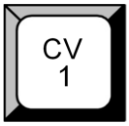
Used to show button menu and menus for interactive communication.



Menu Keys

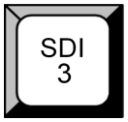
Used to adjust LCD menu and information interaction and with the same function with enter to confirm current options.

Signal Keys



CV signal source button, push the button, its LED light is on, output will be switched to this channel.

HDMI signal source button, push the button, its LED light is on, output will be switched to this channel.



SDI signal source button, push the button, its LED light is on, output will be switched to this channel.

VGA signal source button, push the button, its LED light is on, output will be switched to this channel.

YPbPr signal source button, push the button, its LED light is on, output will be switched to this channel.

Function Keys

Black button, push the button, its LED light is on, user can select the display mode from the LCD panel, system default black. Push the button again to

disable the black function.

Menu button: push **MENU** button to enter the menu items. Turn the knob to to select the relevant submenu.

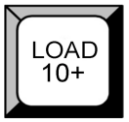
For details, please refer to MENU in menu orientation.

Scale button: Push the button for scale control. Turn the knob, user can change the size and position of the image. It mainly used for LED display.

Split button: push the button, choose “ON” for “SPLIT” option, it can achieve video wall cascade. The max split resolution for single device is: 2560x816. It mainly suitable for LED display users.

Cascade button: push the button, turn the knob, and choose the device that need to cascade in the LCD panel, multiple cascade is available (VSP 168HD V1.1 can not support this function).

Save button: push the button. User can save the current parameters to SAVE 1 to SAVE 10, it supports 10 user modes currently.



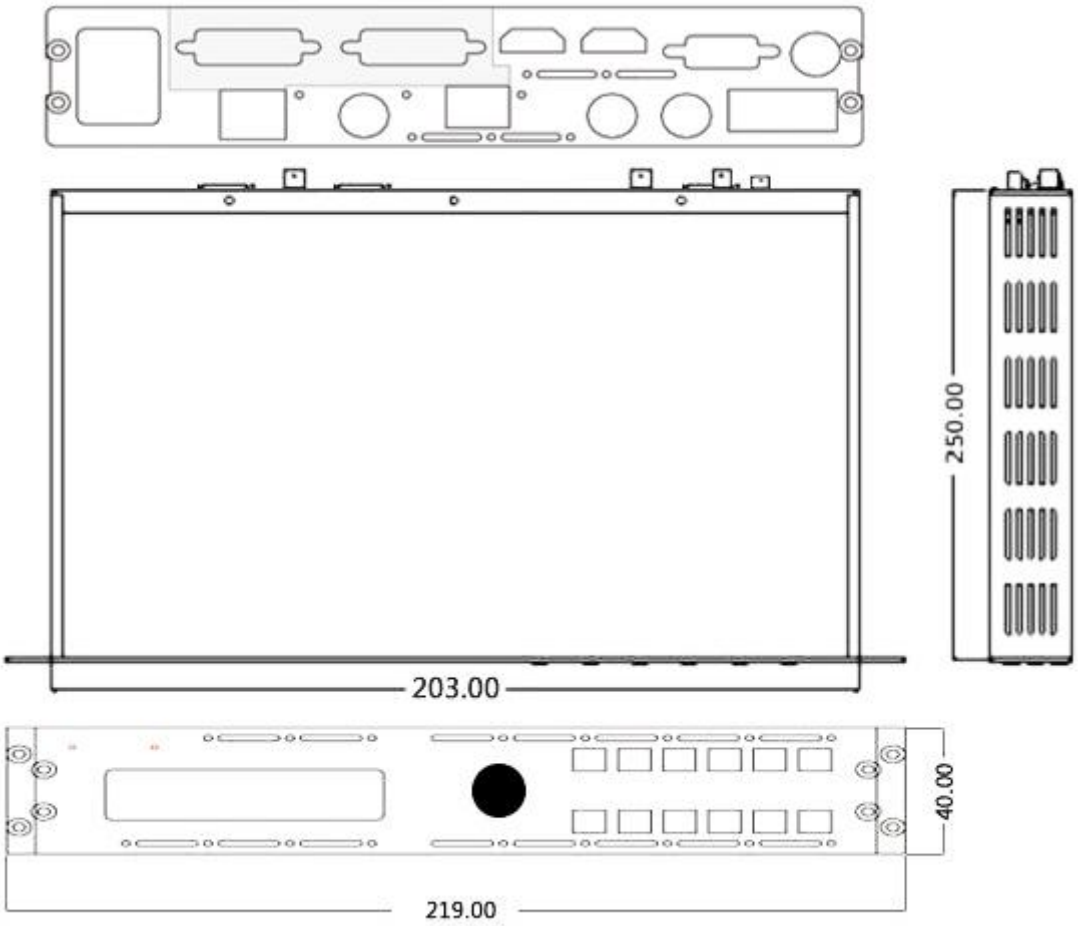
Load button: push the button to load the saving parameters, users can load data from SAVE1 or SAVE10.

3. Hardware Installation

In This Chapter

This chapter provides comprehensive installation instruction for VSP 168HD hardware:

Following is the size of VSP 168HD for your reference.



Safety Precautions

For all VSP 168HD processor installation procedures, please observe the following important safety and handling rules to avoid damage to yourself and the equipment.

- To protect users from electric shock, ensure that the chassis connects to earth via the ground wire provided in the AC power Cord.
- The AC Socket-outlet should be installed near the equipment and be easily accessible.

Unpacking and Inspection

Before opening VSP 168HD process shipping box, inspect it for damage. If you find any damage, notify the shipping carrier immediately for all claims adjustments. As you open the box, compare its contents against the packing slip. If you find any shortages, contact your sales representative.

Once you have removed all the components from their packaging and checked that all the listed components are present, visually inspect the system to ensure there was no damage during shipping. If there is damage, notify the shipping carrier immediately for all claims adjustments.

Site Preparation

The environment in which you install your VSP 168HD should be clean, properly lit, free from static, and have adequate power, ventilation, and space for all components.

4. Menu Orientation

In This Chapter

This chapter describes all VSP 168HD processor menus, including how they are accessed, the functions that are available, and descriptions of each menu tree (in block diagram format).

The following topics are discussed:

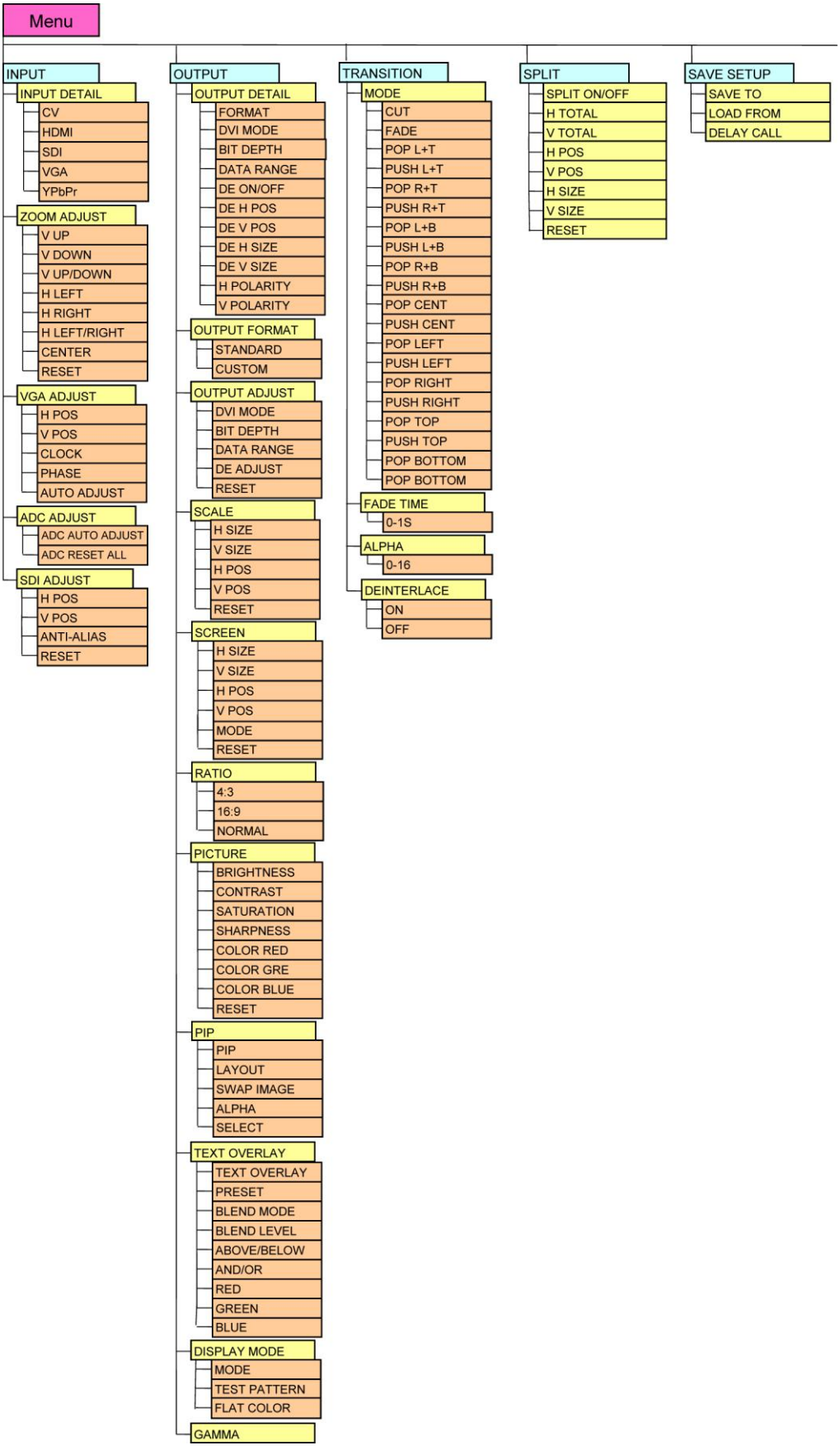
- **MENU**
  - INPUT
  - OUTPUT
  - TRANSITION
  - SPLIT
  - SAVE SETUP
  - SYSTEM
  - LANGUAGE
  - FACTORY RESET

MENU

Push **MENU** button to enter to menu item, menu shown as follows. Turn the knob to select menu item. After the menu means it's in selected state. Turn the knob to enter corresponding for setting or view the menu.

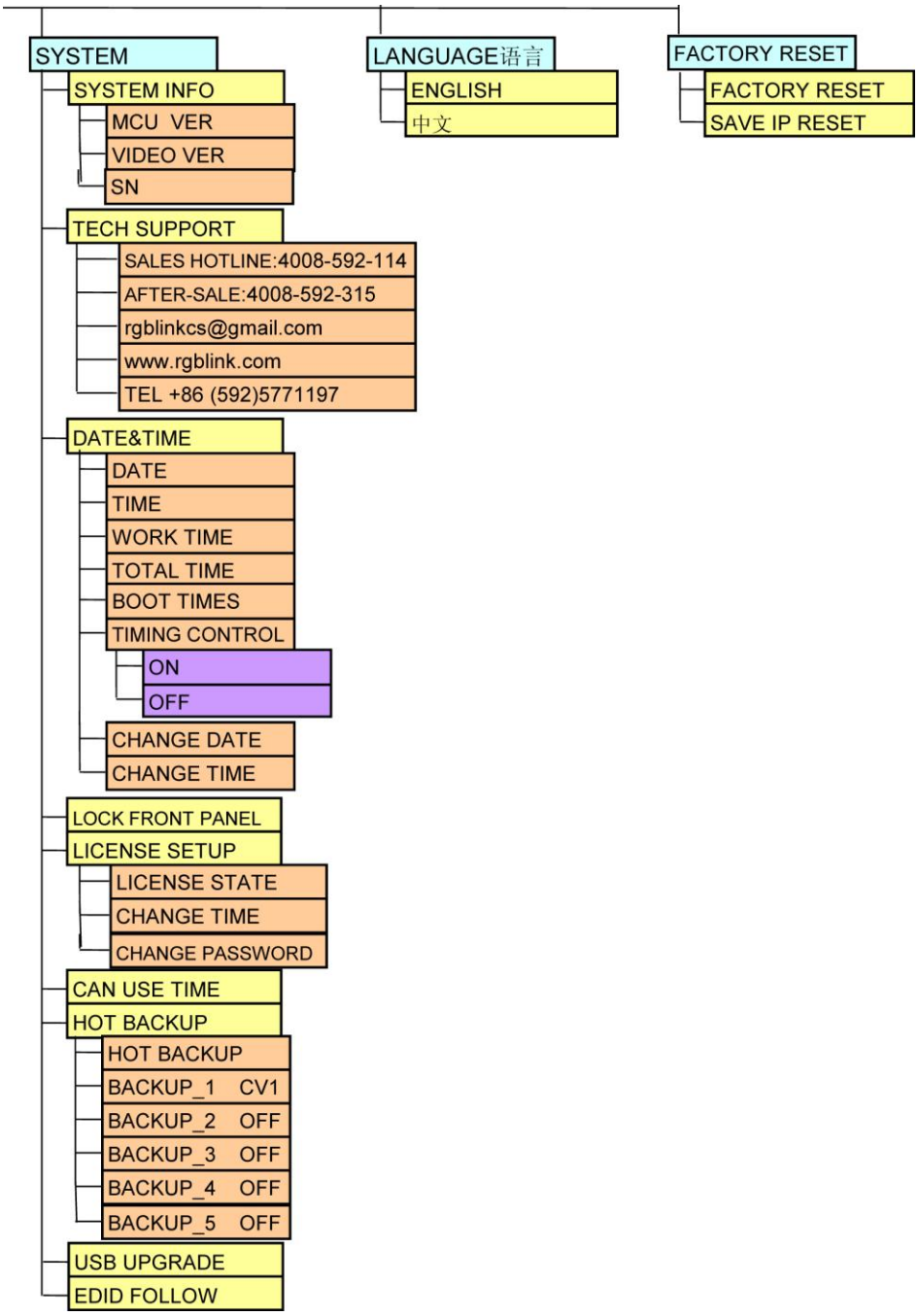
4. MENU Orientation

MENU



4. MENU Orientation

MENU



INPUT

Select <INPUT>, push the knob to confirm, show level 2 menus as follows:

INPUT DETAIL: Display input signal information, including CV, HDMI, SDI, VGA, YPbPr.

ZOOM ADJUST: It can adjust the image zoom size and positions, settings including as follows:

4. MENU Orientation

MENU

V UP--image to up zoom.

V DOWN--image to down zoom.

V UP/DOWN--image to up and down zoom.

H LEFT--image to left zoom.

H RIGHT--image to right zoom.

H LIFT/RIGHT--image to left and right zoom.

CENTER--image from center to the edges zoom.

RESET: If image quality distorts by improper operation, it can be recover by reset**.**

For details, please refer to the instructions in the manual: How to Set up Image Zoom.

VGA ADJUST: Adjust VGA input signal, sub menu as follows:

H POS: Image horizontal position.

V POS: Image vertical position.

CLOCK: Input signal clock.

PHASE: Input image phase.

Note

Only comments to professional operator.

AUTO ADJUST: Auto adjust VGA input signal H POS, V POS, CLOCK, PHASE, auto adjust to display in full screen image.

Note

Comments customers to use this operation in adjusting the VGA input shiftment.

ADC AUTO ADJUST: Auto adjusting for BRIGHTNESS.

SDI ADJUST: When SDI input signal image shift, please adjust image's H POS and V POS to display in full screen image.

Sub menu as follows:

4. MENU Orientation

MENU

H POS: Image horizontal position.

V POS: Image vertical position.

ANTI-ALIAS: If there is sawtooth when input SDI signal, user can do anti-alias processing by modify STEP_1 to STEP_7, and different STEP with different effects. System default STEP_1.

RESET: If image quality distorts by improper operation, it can be recover by reset.

OUTPUT

Select <OUTPUT>, push the knob to confirm, show level 2 menus as follows:

OUTPUT DETAIL: Display output signal information of DV1 and DV2, including OUTPUT FORMAT, DVI MODE, BIT DEPTH, DATA RANGE, DE, DE H POS, DE V POS, DE H SIZE, DE V SIZE, H POLARITY and V POLARITY.

OUT FORMAT: Output format setting, choose <OUTPUT FORMAT>, push the knob, LCD panel show menus as follows:

STANDARD: Push knob button to select the menu item, turn the knob for setting or view the menu. Users can choose different output formats by turning the knob, this option includes 22 common standard output resolutions, shown as follows:

800×600×60, 1024×768×60, 1024×768×75, 1280×720×50, 1280×720×60, 1280×768×60, 1280×800×60, 1280×1024×60, 1360×768×60, 1366×768×60, 1400×1050×60, 1440×800×60, 1440×900×60, 1600×1200×60, 1680×1050×60, 1920×1080×50, 1920×1080×60, 1920×1120×60, 1920×1200×60, 2048×1152×60, 2560×812×60, 2560×816×60.

CUSTOM: The special display project or LED display application would like to require special resolution settings to meet the requirement.

4. MENU Orientation

MENU

Details please refer to the instructions in the manual: How to Do customized Resolution.

OUTPUT ADJUST: Output adjust menu, including sub-menu as follows:

DVI MODE: Can set the protocol as HDMI or DVI, default is DVI output, HDMI signal output will enable when HDMI option checked.

BIT DEPTH: Bit depth setting, system default as 8 bit for DVI signal, user need not set it. And system default as 10 bit, user can also choose 8 bit or 12 bit.

DATA RANGE: DVI out range adjustment can choose RGB or YCBCR among them the RGB adjusting range is between 0-255, YCBCR adjusting range from 16 to 235.

DE ADJUST: DE adjust, the sub-menu as following:

DE ON/OFF: Can choose to open or closed when choose open, it can be adjusted to DE, as follows:

H SIZE: Width setting.

V SIZE: Height setting.

H POS: Horizontal phase setting.

V POS: Vertical phase setting.

When the signal source of the screen appear black side, can use this function adjustment, make the image to full screen display.

RESET: If image quality distorts by improper operation, it can be recover by reset.

Note

Only comments to professional operator.

SCALE: It can adjust the image scale size and image position settings including as follows:

H SIZE: Width setting.

4. MENU Orientation

MENU

V SIZE: Height setting.

H POS: Horizontal phase setting.

V POS: Vertical phase setting.

RESET: If image quality distorts by improper operation, it can be recover by reset.

Note

The SCALE button can also achieve this setting.

SCREEN: Screen setting, user can change the screen through the digital setting parameters to easily change the screen size and position. Mainly used in the LED display. Settings as follow:

show menus as follows:

H SIZE: Width setting.

V SIZE: Height setting.

H POS: Horizontal phase setting.

V POS: Vertical phase setting.

Mode: Can choose SCREEN SIZE or FULL SIZE.

RESET: If image quality distorts by improper operation, it can be recover by reset.

For details, please refer to the instructions in the manual: How to Realize the Screen Size Setting.

RATIO： Proportional setting, turn the knob can realize the conversion between high and wide.

Normal: Original video proportion, 4:3 aspect ratios; 16:9 aspect ratios.

PICTURE: Picture setting, including sub-menu as follows:

BRIGHTNESS: It can change the image color BRIGHTNESS via BRIGHTNESS Settings.

CONTRAST: It can change the image color CONTRAST via CONTRAST Settings.

4. MENU Orientation

MENU

SATURATION: It can change the image color SATURATION via SATURATION Settings.

SHARPNESS: It can change the image color SHARPNESS via SHARPNESS Settings.

COLOR RED: It can change the image color Red via Red Settings.

COLOR GREEN: It can change the image color Green via Green Settings;

COLOR BLUE: It can change the image color Blue via Blue Settings.

RESET: If image quality distorts by improper operation, it can be recover by reset.

Note

Users can set according to their actual situation, this function mainly suitable for these professional operator who knows how to set the image quality correctly. Others are not comments to do these operations. If image distorted by improper operation, it can be initialized operated to recover by factory reset.

PIP: PIP setting, menus are as follows:

PIP: Choose ON to set PIP mode.

LAYOUT: Can choose PIP layout, the corresponding results are as follows:

PIP L+T PBP L+R PBP T+B

SWAP IMAGE: It can set PIP to swap exchange, when choose ON, it can switch IMAGE A and IMAGE B.

ALPHA: Use can set the image transparency, the regulating range is among 0 to 16.

4. MENU Orientation

MENU

SELECT: Can choose to set the size or position of IMAGE A or IMAGE B individually.

For details, please refer to the instructions in the manual: How to Set up the PIP.

TEXT OVERLAY: Text overlay function, settings as follows:

TEXT OVERLAY: Can select “ON” or “OFF”, system default OFF.

PRESET: Can preset value of the following functions, and total 13 modes:

User: User mode.

WhOnBk1: White On Black 1.

WhOnBk2: White On Black 2.

BkOnWh1: Black On White 1.

BkOnWh2: Black On White 2.

GrnOnBk1: Green On Black 1.

GrnOnBk2: Green On Black 2.

GrnOnWh1: Green On White 1.

GrnOnWh2: Green On White 2.

RedOnBk1: Red On Black 1.

RedOnBk2: Red On Black 2.

RedOnWh1: Red On White 1.

RedOnWh2: Red On White 2.

BLEND MODE: Blend mode, with two modes, “Mode 1” and “ Mode 2”.

Mode 1: Graphic content locate at the top and is non-transparent, background transparency is controlled by double-picture transparency.

Mode 2: Graphic content is controlled by double-picture transparency, the background is completely transparent.

BLEND LEVEL: Can set the image display transparency, regulating range between 0~16.

ABOVE/BELOW:

ABOVE: In image 2, if the pixel value is higher than the setting value, then

the image is the graphic content pixel, otherwise, it is the graphic background pixel. It should combined with "AND/OR" conditions when judging.

BELOW: In image 2, if the pixel value is lower than the setting value, then the image is the graphic content pixel, otherwise, it is the graphic background pixel. It should combined with "AND/OR" conditions when judging.

AND/OR:

AND: All “Red, Green, Blue” value must meet ABOVE or BELOW conditions.

OR: Any one of “Red, Green, Blue” value should meet ABOVE or BELOW conditions.

RED: Red limit, cut-off point condition of ABOVE and BELOW condition in red channel, the range is 0 ~ 255.

GREEN: Green limit, cut-off point condition of ABOVE and BELOW condition in green channel, the range is 0 ~ 255.

BLUE: Blue limit, cut-off point condition of ABOVE and BELOW condition in blue channel, the range is 0 ~ 255.

For details, please refer to the instructions in the manual: How to Realize the Text Overlay Setting.

DISPLAY MODE:

MODE: Image mode selection, user can choose different output modes according to their requirement, such as: black screen, live image, freeze image, flat image, test pattern.

TEST PATTERN: Test pattern setting, turn the knob, there are 1 to 66 kinds of modes for choose.

Notice: When the input comes from DVI, VGA, or SDI (input format is progressive only), the TEST PATTERN function will be enable and ready to operate.

4. MENU Orientation

MENU

FLAT COLOR: When the output mode is pure color image, choose corresponding red, green and blue color value in this option to meet the practical needs.

GAMMA: Gamma setting, push it to adjust the image gamma value. Gamma values include: LINEAR, sRGB, -1.2, -1.4, -1.6, 1.2, 1.4, 1.6.

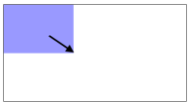
TRANSITION

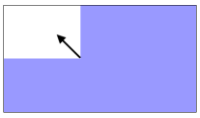
Choose <TRANSITION>, push the knob to confirm, then the LCD display displays the level 2 menu as following:

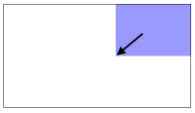
MODE: Switch mode, including the following modes:

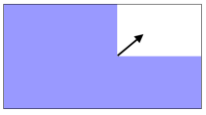
CUT: Seamless switching.

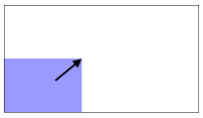
FADE: Fade in fade out.

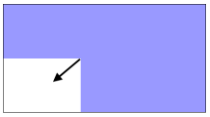
POP L+T: 

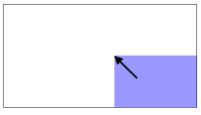
PUSH L+T: 

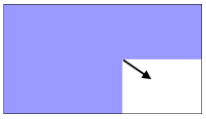
POP R+T: 

PUSH R+T: 

POP L+B: 

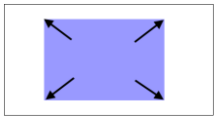
PUSH L+B: 

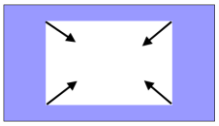
POP R+B: 

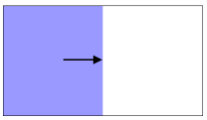
PUSH R+B: 

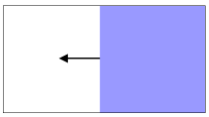
4. MENU Orientation

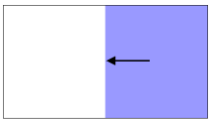
MENU

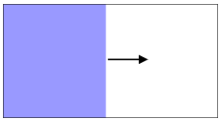
POP CENTRE: 

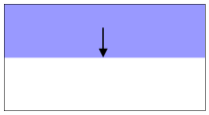
PUSH CENTRE: 

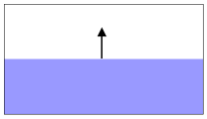
POP LEFT: 

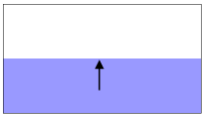
PUSH LEFT: 

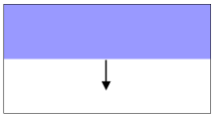
POP RIGHT: 

PUSH RIGHT: 

POP TOP: 

PUSH TOP: 

POP BOTTOM: 

PUSH BOTTOM: 

Note: Means the image is emerging;

Means the image is disappearing.

Arrows represents the direction of the image move, that is, the image that arrow point, is compressed or stretched to the direction that arrow indicates, until disappear or full screen.

FADE TIME: Switch time setting. Turn the knob to choose the time and push the knob to confirm. The switching time ranges from 0 to1.0.

ALPHA: Image transparency setting, the regulating range is among 0 to 16.

DEINTERLACE: Force Deinterlace function, can choose “ON” or “OFF”.

ON: Force interlace for interlaced signal without effect switching, but with effects switching for progressive signal.

OFF: No deinterlace, with effect switching.

SPLIT

Choose <SPLIT>, push the knob to confirm, the LCD display show the level 2 menu as following:

SPLIT ON/OFF: Split function, can choose “ON” or “OFF”.

H TOTAL: The total width points of LED display that will split.

V TOTAL: The total height points of LED display that will split.

H POS: The horizontal position of the device when do split.

V POS: The vertical position of the device when do split.

H SIZE: The width of the device when do split.

V SIZE: The height of the device when do split.

RESET: If image quality distorts by improper operation, it can be recover by reset.

SAVE SETUP

SAVE TO: The device provides ten save modes, users can save the current operations to SAVE1 to SAVE10.

Note

The SAVE button can also achieve this setting.

LOAD FROM: It can call the saved user modes via the call save function.

DELAY CALL: Set delay the output time. When more than one equipment power on, and the processor is the end equipment in order to improve question that can’t identify the input signal and phenomenon that LED

display appear messy code and flash screen, now need to delay the input time.

SYSTEM

SYSTEM INFO: System information, including.

MCU VER: Information of MCU version.

VIDEO VER: Information of VIDEO version.

SN: Serial number of of VSP 168HD.

401 BOARD VER: The version of 401 board.

TECH SUPPORT: Including sales hotline, after-sale, web site, email and telephone.

DATE&TIME: Display date or time, including the following items:

DATE: Display date.

TIME: Display time.

WORK TIME: Display the working time from boot to present.

TOTAL TIME: Total working time.

BOOT TIMES: Boot times.

TIMING CONTROL: Timing control switch.

CHANGE DATE.

CHANGE TIME.

LOCK FRONT PANEL: Through this setting can choose whether to lock the keys, if the key is locked, the equipment will remind: "PRESS MENU KEY AND HOLD 3s TO RELEASE!"

LICENSE SETUP: The device will not work if excess the prescribed time, there are no signal output, it needs to input password and modify the using time to continue to work.

CAN USE TIME: Display the rest of the working time.

HOT BACKUP: User can enable or disable the hot backup function.

Choose “ON” to set the backup signal for BACKUP_1 to BACKUP_5. It will

switch to the backup signal if interrupt signal.

USB UPGRADE: Upgrade the device by USB.

EDID FOLLOW: Choose ON, and start the EDID follow function, the EDID of HDMI/DVI input will be set to the output resolution user define, and the HDMI/DVI signal source computer provide will follow this resolution, achieve the point-to-point result of input and output.

LANGUAGE

Through this option, user can choose Chinese or English according to their needs to operate the interface more quickly.

FACTORY RESET

Enter <FACTORY RESET> to reset the IP, choose YES and push the SEL button to confirm, then VSP 168HD is reset to its factory settings. After 5 seconds, it completes factory settings and is ready for more operations.

5. Communication Software Guideline

In This Chapter

This chapter provides detailed information about the control communication software. The following topics are discussed:

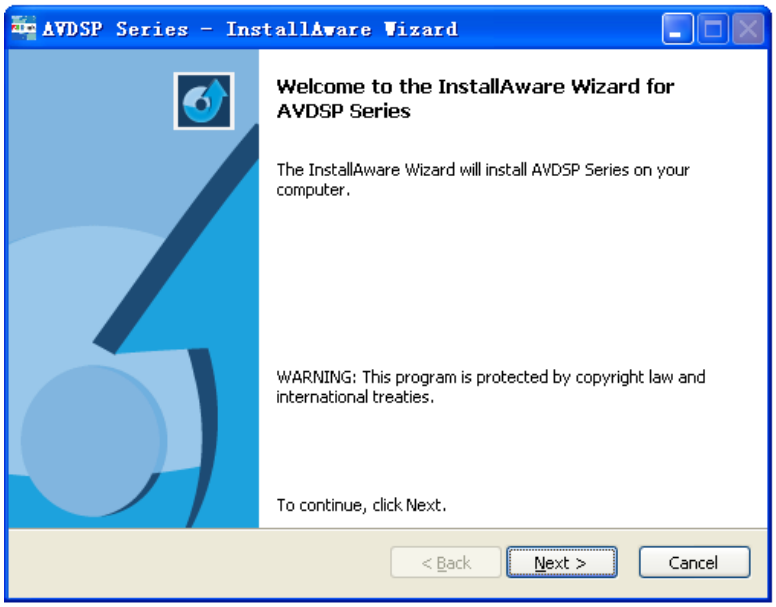
- Software Installation
- Software Operation
- How to Connect Windows Control Program by RS232 Interface

Software Installation

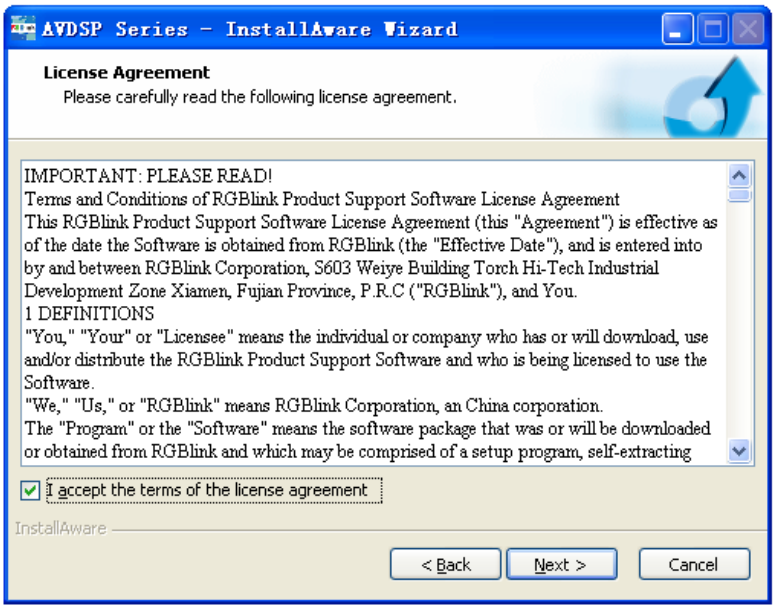
VSP 168HD video processor is very easy to be configured with user friendly communication software, support drag and drop operation for edit and display. Also it can be customized with schedule function.

Double click

to install, English version default for use, click “select” to next dialog:

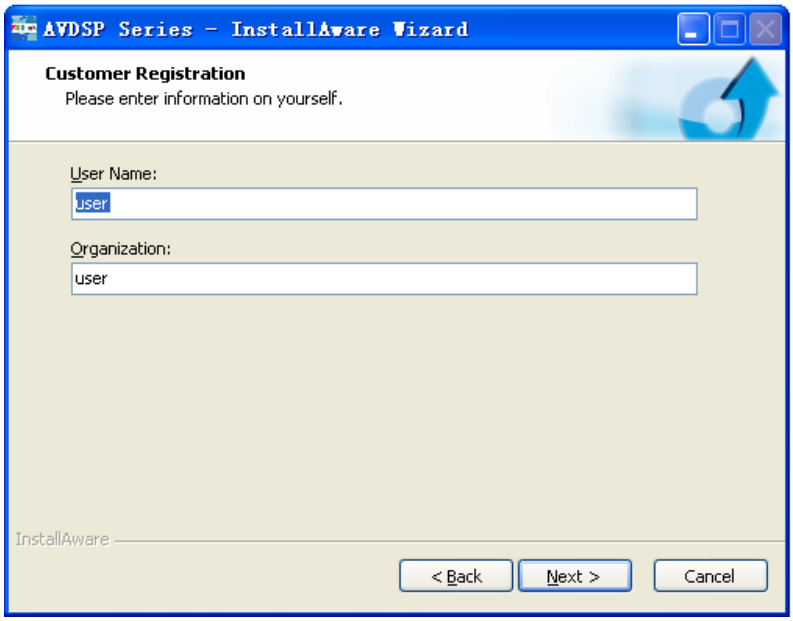

AVDSP Series - InstallAware Wizard
Welcome to the InstallAware Wizard for AVDSP Series
The InstallAware Wizard will install AVDSP Series on your computer.
WARNING: This program is protected by copyright law and international treaties.
To continue, click Next.
< Back
Next >
Cancel

And in next dialog is the user agreement of the software, click Agree to go on:

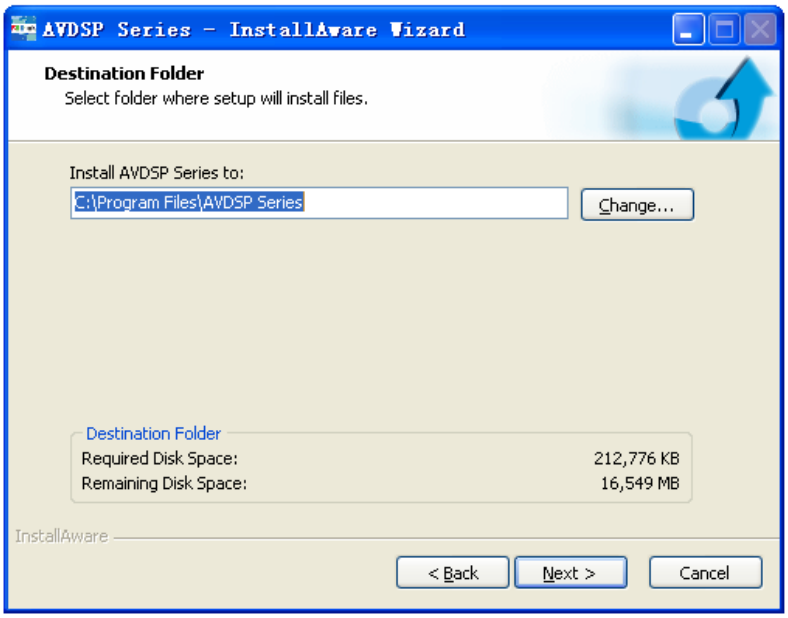

AVDSP Series - InstallAware Wizard
License Agreement
Please carefully read the following license agreement.
IMPORTANT: PLEASE READ!
Terms and Conditions of RGBlink Product Support Software License Agreement
This RGBlink Product Support Software License Agreement (this "Agreement") is effective as of the date the Software is obtained from RGBlink (the "Effective Date"), and is entered into by and between RGBlink Corporation, S603 Weiye Building Torch Hi-Tech Industrial Development Zone Xiamen, Fujian Province, P.R.C ("RGBlink"), and You.
1 DEFINITIONS
"You," "Your" or "Licensee" means the individual or company who has or will download, use and/or distribute the RGBlink Product Support Software and who is being licensed to use the Software.
"We," "Us," or "RGBlink" means RGBlink Corporation, an China corporation.
The "Program" or the "Software" means the software package that was or will be downloaded or obtained from RGBlink and which may be comprised of a setup program, self-extracting
I accept the terms of the license agreement
InstallAware
< Back
Next >
Cancel

5. Communication Software Guideline

Software Installation



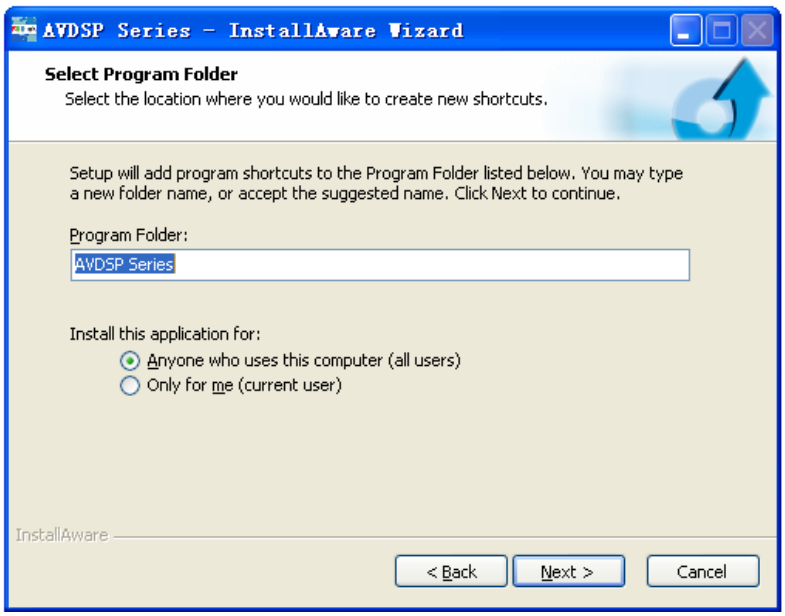
User can select “Change” to choose the VSP 168HD install software:



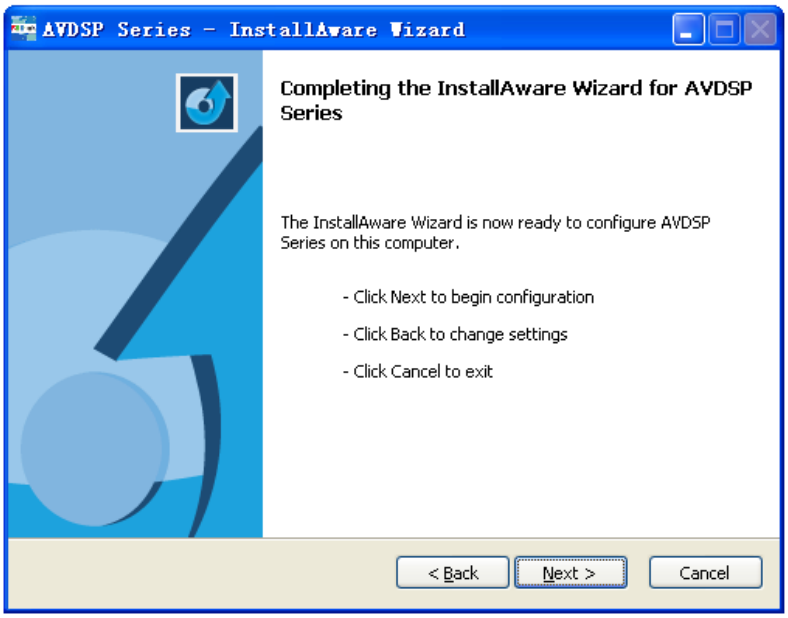
5. Communication Software Guideline

Software Installation

Click “Next” to go on:


AVDSP Series - InstallAware Wizard
Select Program Folder
Select the location where you would like to create new shortcuts.
Setup will add program shortcuts to the Program Folder listed below. You may type a new folder name, or accept the suggested name. Click Next to continue.
Program Folder:
AVDSP Series
Install this application for:
Anyone who uses this computer (all users)
Only for me (current user)
InstallAware
< Back
Next >
Cancel

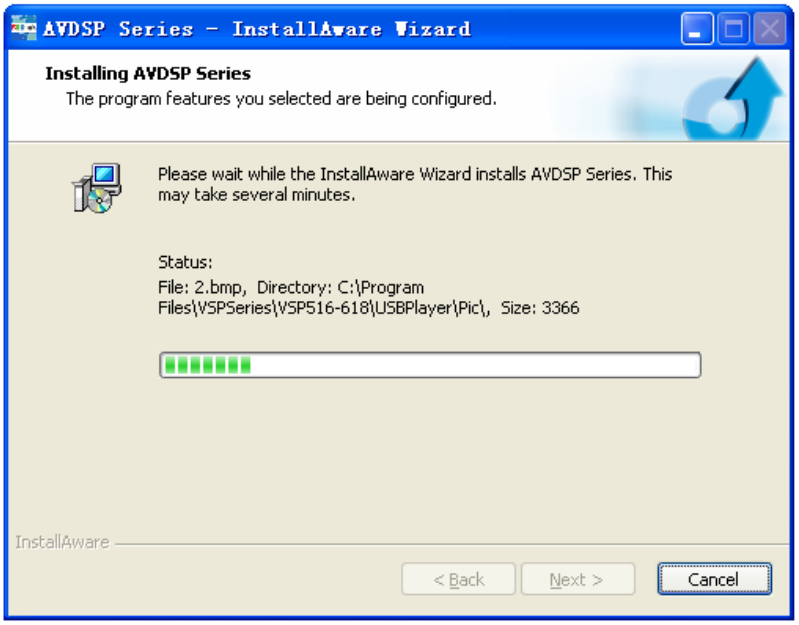
Click “Next” to go on:


AVDSP Series - InstallAware Wizard
Completing the InstallAware Wizard for AVDSP Series
The InstallAware Wizard is now ready to configure AVDSP Series on this computer.
- Click Next to begin configuration
- Click Back to change settings
- Click Cancel to exit
< Back
Next >
Cancel

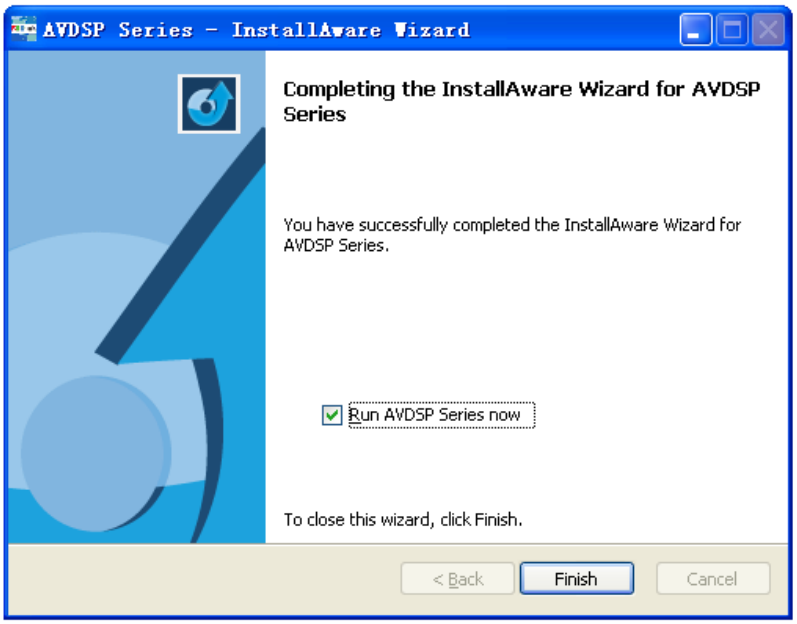
5. Communication Software Guideline

Software Installation

Click “Next” to go on:


AVDSP Series - InstallAware Wizard
Installing AVDSP Series
The program features you selected are being configured.
Please wait while the InstallAware Wizard installs AVDSP Series. This may take several minutes.
Status:
File: 2.bmp, Directory: C:\Program Files\VSPSeries\VSP516-618\USBPlayer\Pic\, Size: 3366
InstallAware
< Back
Next >
Cancel

Click “Finish” and ready to run VSP 168HD console:


AVDSP Series - InstallAware Wizard
Completing the InstallAware Wizard for AVDSP Series
You have successfully completed the InstallAware Wizard for AVDSP Series.
Run AVDSP Series now
To close this wizard, click Finish.
< Back
Finish
Cancel

Software Operation

Install communication which comes with the package of VSP 168HD device. Double click

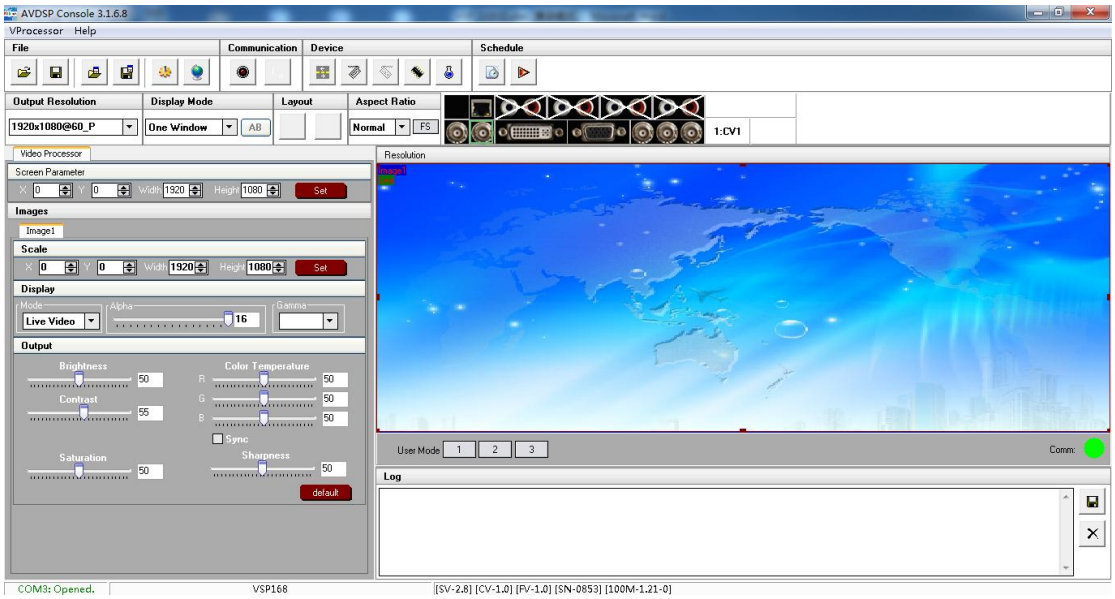
icon from home screen to run the software.

Double click

icon, then choose and double click

to run the software.

VSP 168HD communication software interface as shown:



Connection

Besides the power cord, the product default equip with the RS-232 line, DB9F line, and RJ11 (6 B4C) line to connect VSP 168S to the windows control program.

For more detailed information, please refer to: "**How to Connect Windows Control Program by RS232 Interface**".

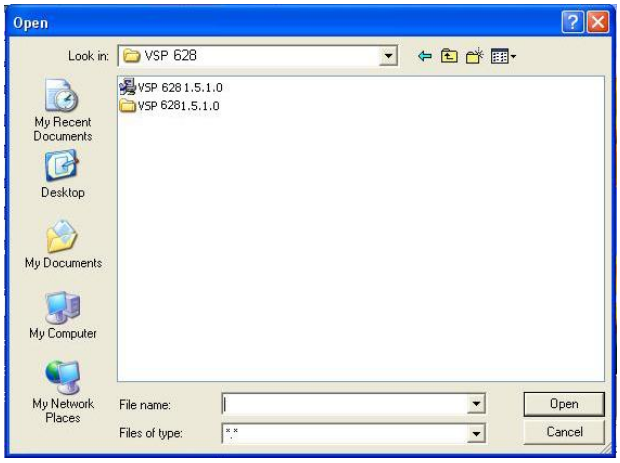
Use

File Toolbar

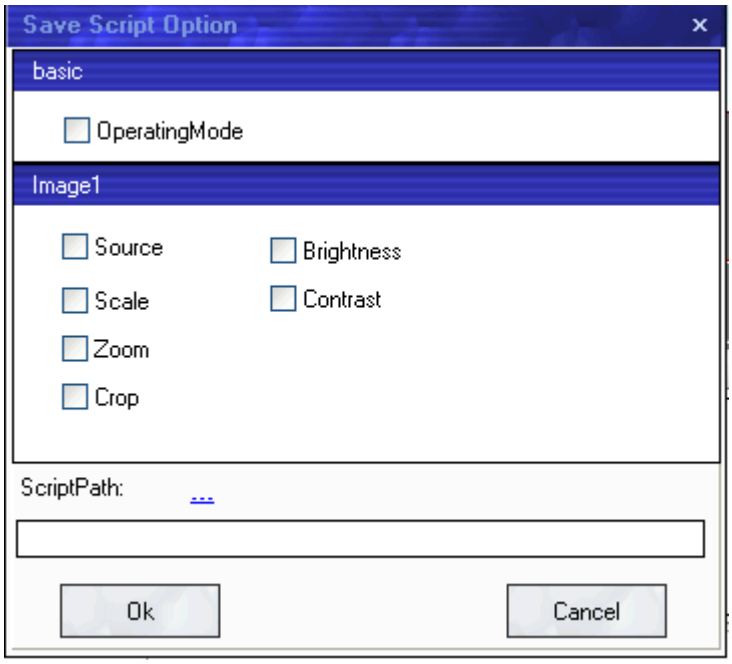
: Open script. User can open saved script and alter its parameters.

5. Communication Software Guideline

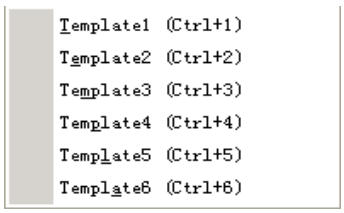
Software Operation



: Save script. Save current user parameters as script to the prescribed path.



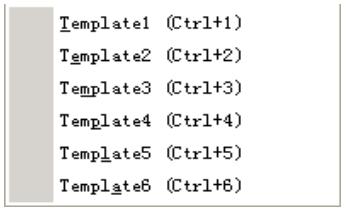
: Import template. There are six templates for user. Users can setup one of templates as the common one.



: Export template. Export current config as template.

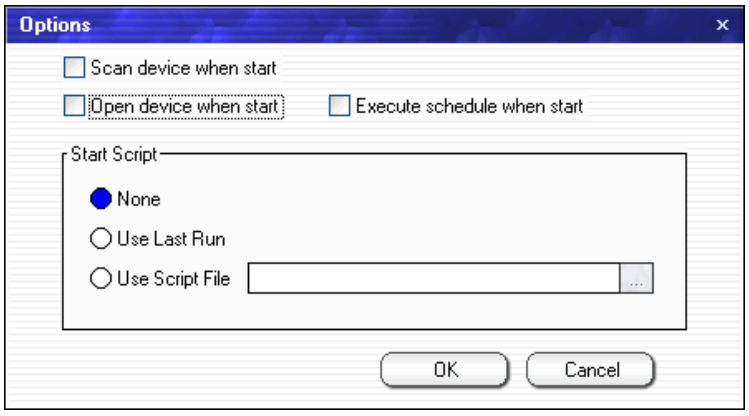
5. Communication Software Guideline

Software Operation

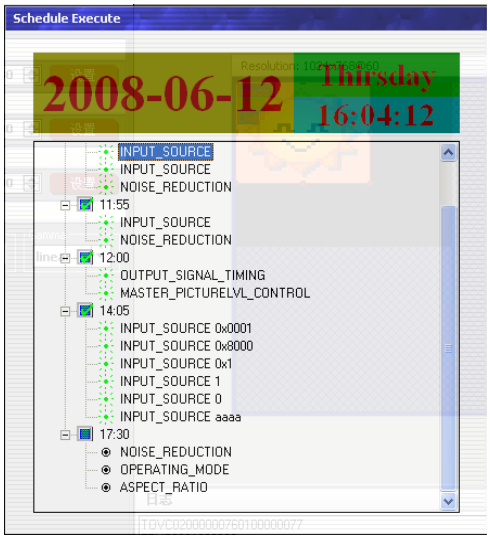


: Option: User can choose open device when start and using script saved before or execute schedule edited before when start.

If user choose open device when start, user can use last run, use script file or none when user start. User can click to choose which script user want to open.



If user choose execute schedule when start, the next dialogue will display when software run.

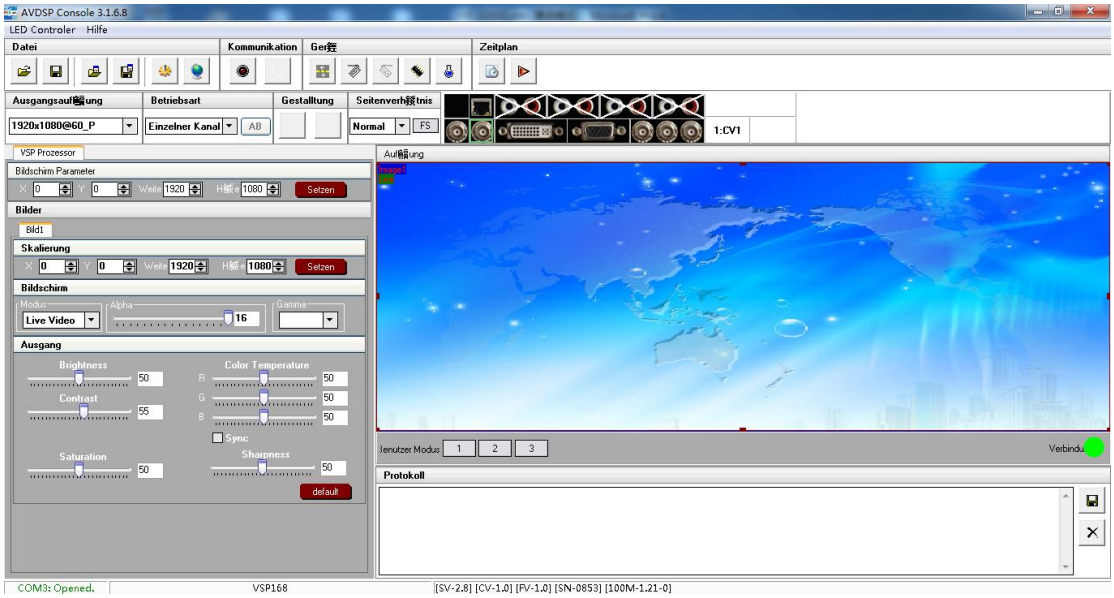


: Language: The software supports Chinese, English and Germany.

5. Communication Software Guideline

Software Operation

The picture following is the German dialogue.



Communication Toolbar

: Open COM.

: Close COM

: Set COM.

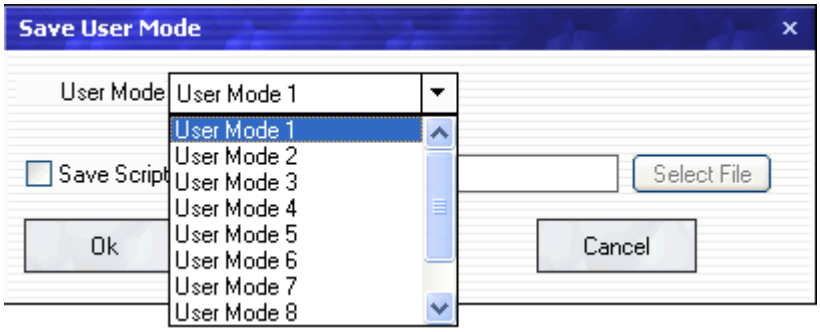
Device Toolbar

: Synchronization.

: Save to flash.

5. Communication Software Guideline

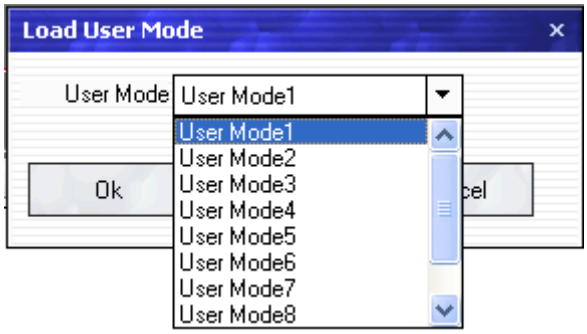
Software Operation



Note

Same as MENU → SAVE SETUP → SAVE TO or the same as SAVE key.

: Load form Flash.

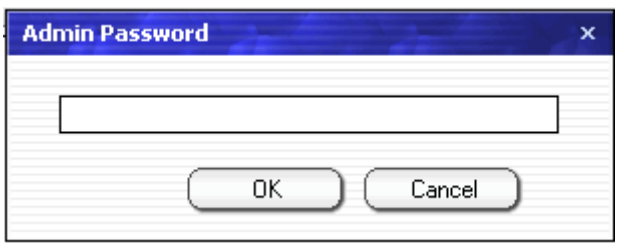


Note

Same as MENU→ SAVE SETUP → LOAD FROM or the same as LOAD key.

: Factory setup.

: Advance.



Note

Advance is only done by engineer. Please connect us for password.

5. Communication Software Guideline

Software Operation

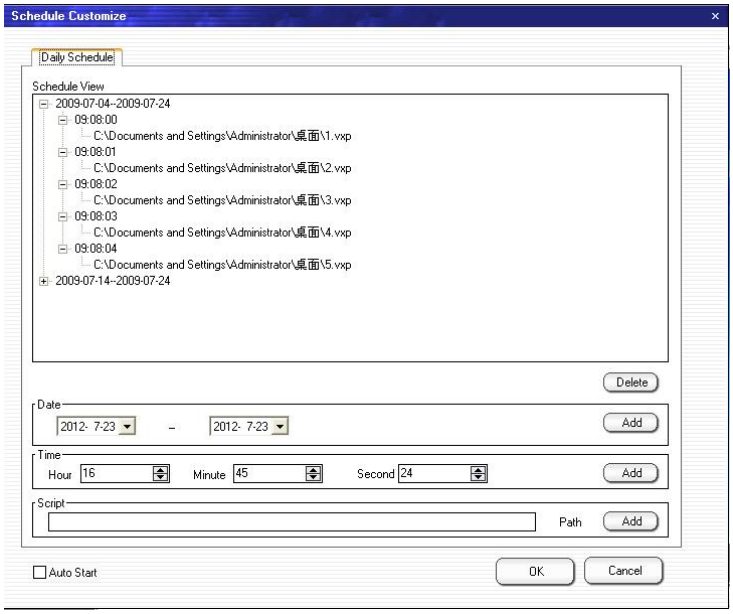
: VGA adjustment.

Note

Same as MENU → INPUT → VGA ADJUST.

Schedule Toolbar

: Customize schedule.



: Execute schedule. Execute tasks according to schedule.

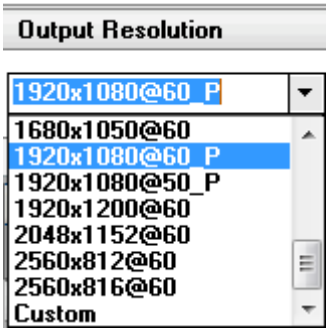
5. Communication Software Guideline

Software Operation

Output Resolution Toolbar

User can choose different output resolution by selecting from pull down list.

VSP 168HD has 22 output resolutions for users selection.



Note

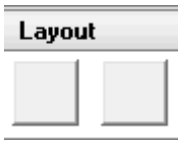
Same as MENU→ OUTPUT→ OUTPUT FORMAT.

Images Display Mode Toolbar

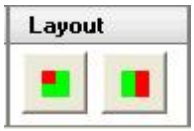
Choose to work in One Window or Two Window.

Layout Toolbar

If in one window mode, the dialog is in grey and it is in limited use.



If in two window mode, user can set the device to work in PIP or PBP mode directly with quick preset layout button as following.

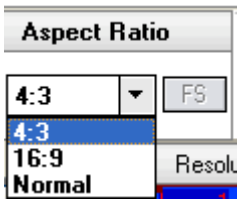


Note

Same as MENU → OUTPUT → PIP → LAYOUT.

Aspect Ratio Toolbar

Users can select 4:3, 16:9 or Normal in the pull-down options.



Note

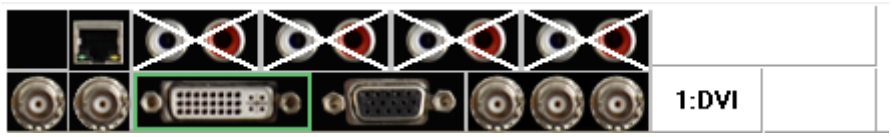
Same as MENU → OUTPUT → RATIO.

Signal Input Toolbar

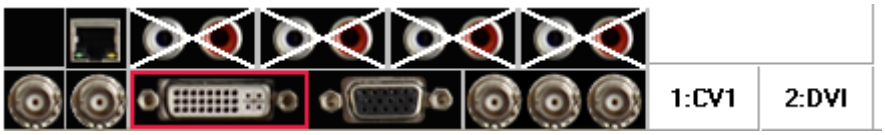
The white area displays the name of input interface when the mouse is over the interface picture on the left. The green pane means current selected interface.

5. Communication Software Guideline

Software Operation



When user selects a dual channel mode, select any channel image, click on the toolbar interface the ICONS for the channel selection input interface, green toolbar means the signal is chosen the current interface for channel 1 input interface, the default last single channel chosen interface for channel 2 input interface, the currently selected channel will be shown on the right side of the source.



Screen Parameter Toolbar

User can set size and position of the screen simply, mainly applies to LED screens users. After setting screen parameter, the user choice PIP or PBP operation, display picture can directly shows on corresponding screen.

Note

Same as MENU → OUTPUT → SCREEN

Image Toolbar

User can scale the images. Image 2 can't choose in single channel mode.

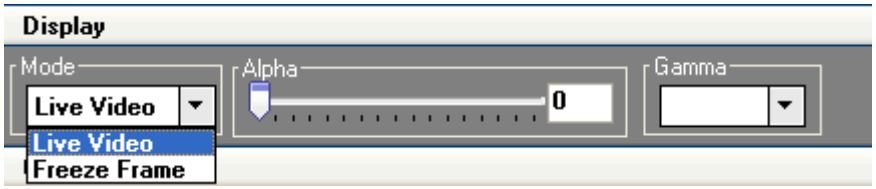
Note

Same as MENU → OUTPUT → SCALE or SCALE key.

5. Communication Software Guideline

Software Operation

Display Toolbar

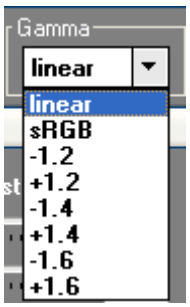


Display toolbar Users can set Alpha value of “Live Video” and “Freeze Frame” through display toolbar. When it is in Live Video, the video plays properly, when it is in Freeze Frame, the video stop playing.

Note

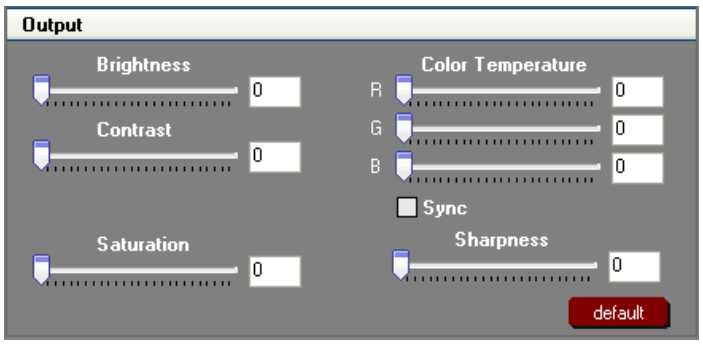
Same as MENU → OUTPUT → DISPLAY MODE → MODE.

Setting Gamma is generally not recommended, since LED display with Gamma function. For further information, users can contact with our customer service team.



Output Image Setup Toolbar

User can customize the brightness and the contrast.



5. Communication Software Guideline

Software Operation

Note

Same as MENU⟶ OUTPUT⟶ PICTURE.

Images Display Toolbar

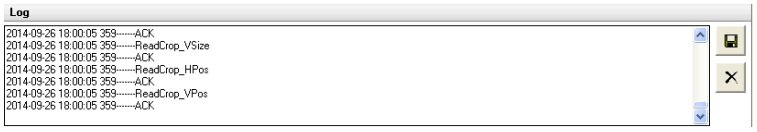
User can customize image or images position and size just by drag and drop image (images) in this area. This process is sync to the parameters in images toolbars.

User Mode Toolbar

Users can recall the saved user mode1, mode2 or mode3.

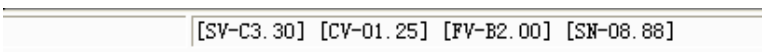
Log Toolbar

User can save or delete the operate log file.



Information Toolbar

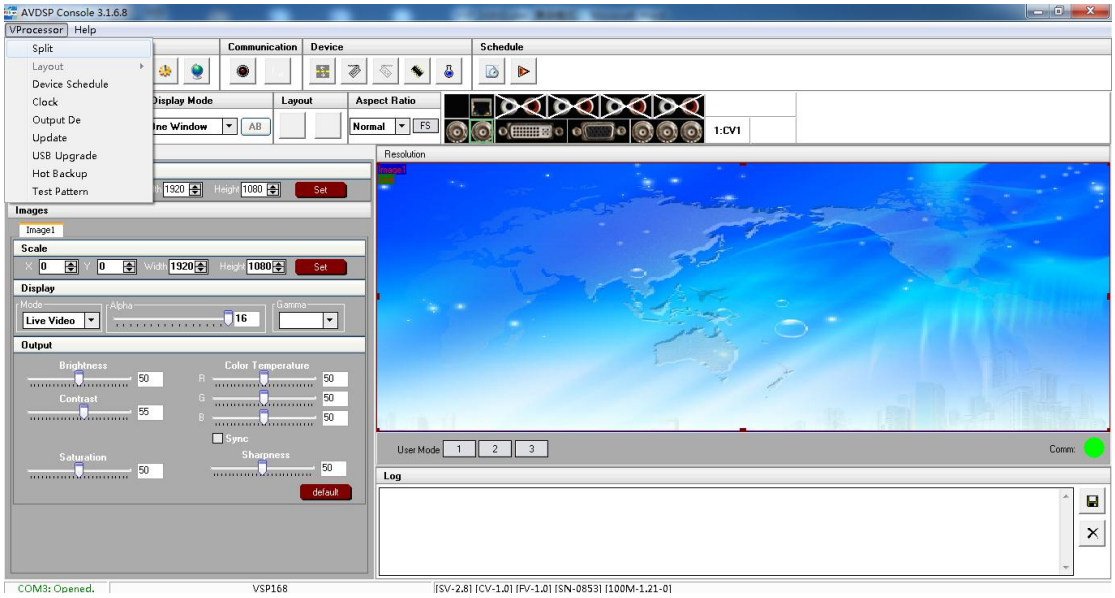
It is the VSP 168HD software version, core board version, firmware version and the serial number in bottom of the software interface.



5. Communication Software Guideline

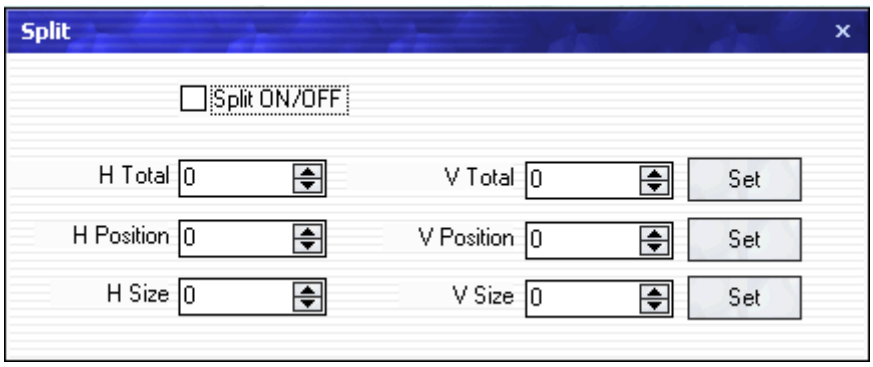
Software Operation

[Video Processor] Options



Split:

Split function, choose “ON” can set H total, V total, H position, V position, H size and V size.



Note

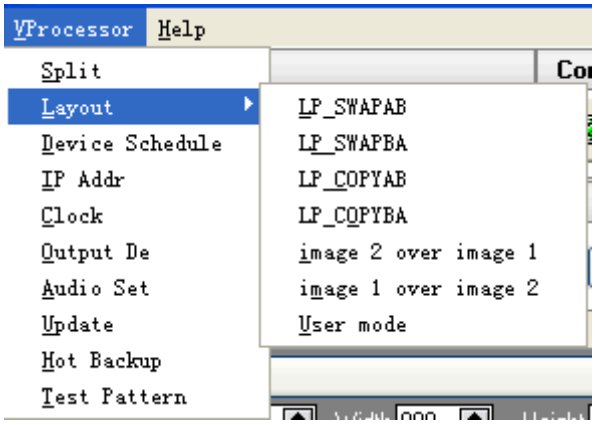
Same as MENU → SPLIT.

Layout:

User can set the layout in Two Window mode.

5. Communication Software Guideline

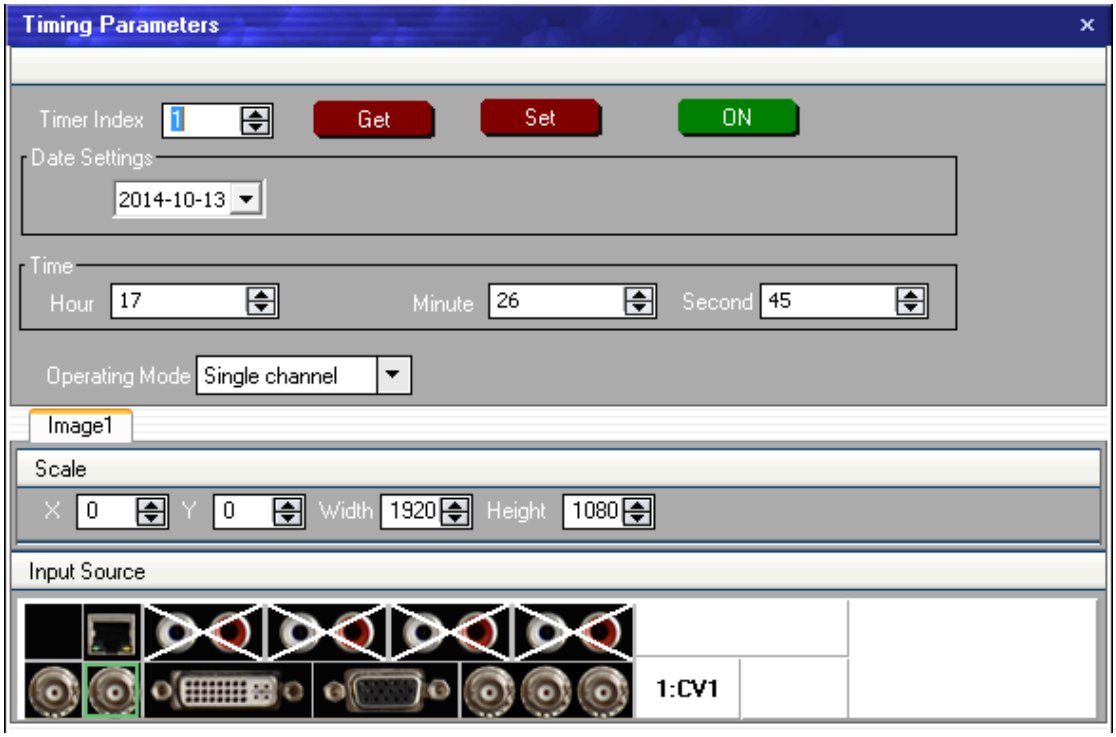
Software Operation



Device Schedule:

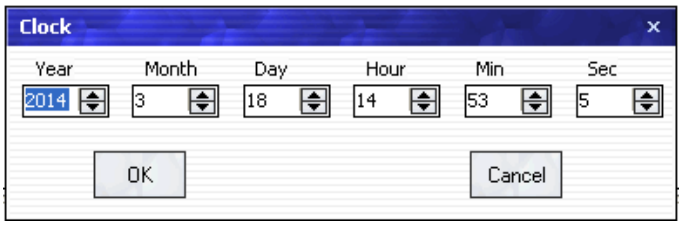
Users can set up VSP 168HD to play the appointed input video automatically in time and operation of single or dual channels, ratio place.

Users can setup up to 10 timing operation in the schedule.



Clock：

Users can set or adjust lower computer time through" clock".



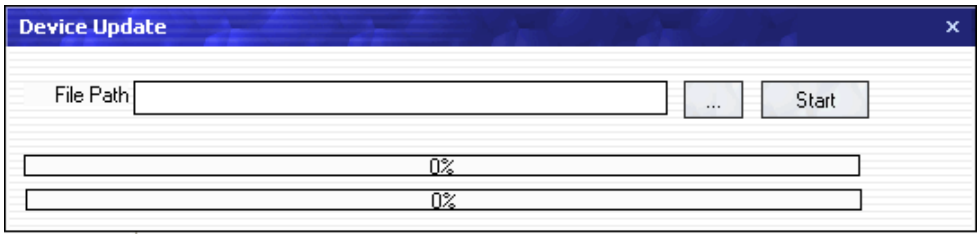
5. Communication Software Guideline

Software Operation

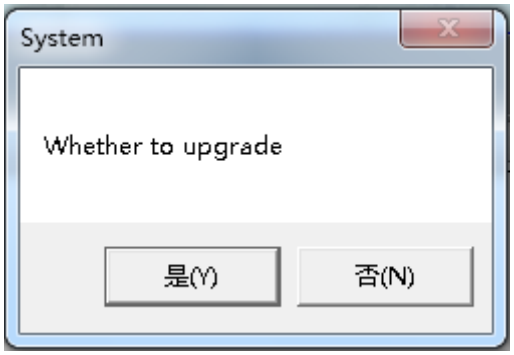
Output Adjust：

User can adjust the DVI1 and DVI2 output port.

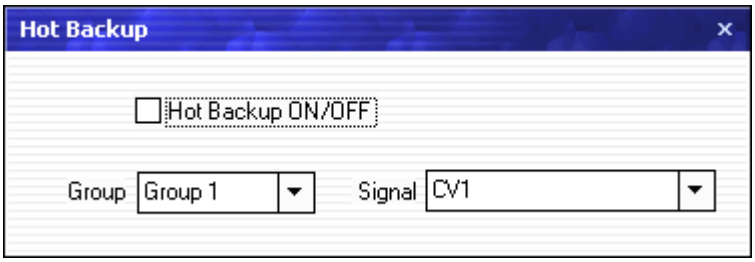
Update：



USB Upgrade：



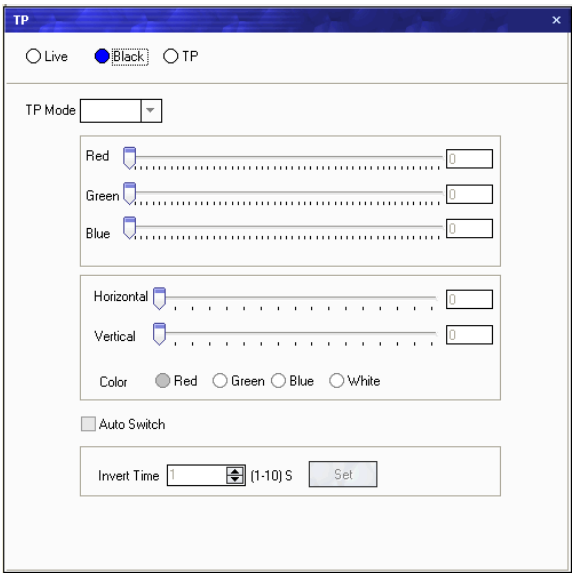
Hot Backup：



5. Communication Software Guideline

Software Operation

Test Pattern：



[Help] Options

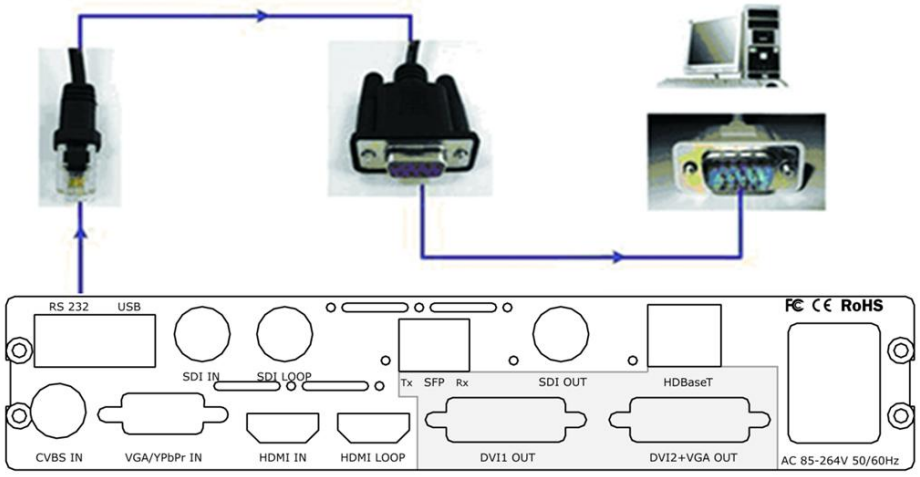
Version History: The update version of software.

About: The information of the software version and the company.

How to Connect Windows Control Program by RS232 Interface

Firstly, install the control software in your PC.

Take out the RS 232 cable as following (RS-232, with 9-pin on one end, RJ11 on the other side). Connect one side of the RJ11 download line to the RS232 on the video processor VSP 168HD, and the other side to be connected to the serial port on the PC.

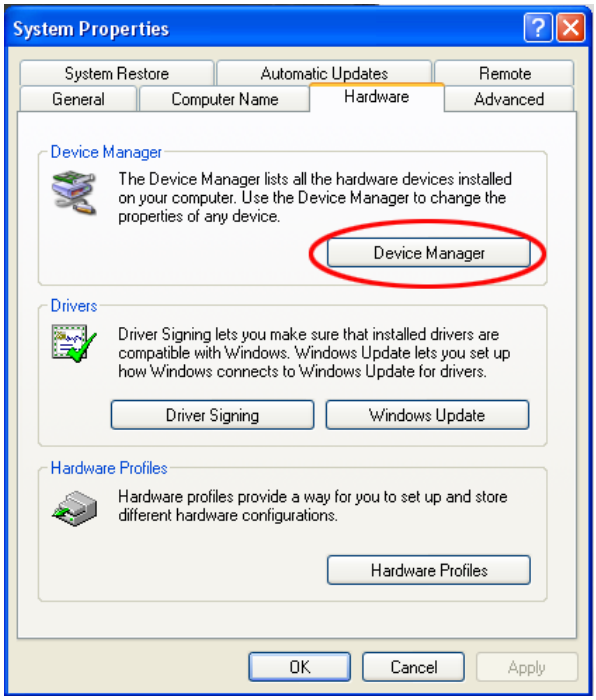


Ensure the cable connection is good. Turn on the VSP 168HD Video Processor.

Right click [My Computer] on the home screen of control PC. Enter [Attribute], Find [Hardware] Option, shown as following.

5. Communication Software Guideline

How to Connect Windows Control Program by RS232 Interface


System Properties
System Restore
Automatic Updates
Remote
General
Computer Name
Hardware
Advanced
Device Manager
The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.
Device Manager
Drivers
Driver Signing lets you make sure that installed drivers are compatible with Windows. Windows Update lets you set up how Windows connects to Windows Update for drivers.
Driver Signing
Windows Update
Hardware Profiles
Hardware profiles provide a way for you to set up and store different hardware configurations.
Hardware Profiles
OK
Cancel
Apply

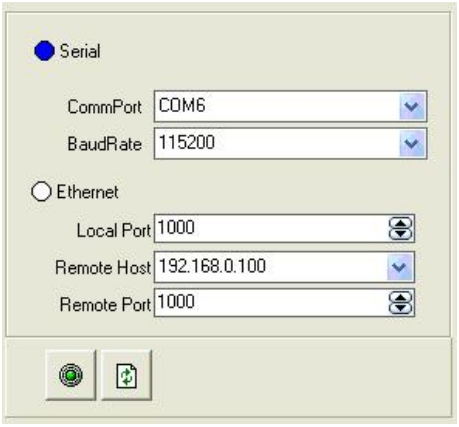
Click [Device Manager] “+” on the left, check the COM number, as following,

COM1 is offered.

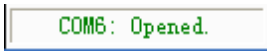
Make sure the COM be used and then run the control software, find [Communication] option. In default, first time user have to click button, as following:

5. Communication Software Guideline

How to Connect Windows Control Program by RS232 Interface



Check and tap [Serial], Serial Port , for example, is **COM6** which is checked from device manager. Set VSP 168HD Boud Rate to be :115200, Click[Confirm] after setting.

Click [open serial], check if [COM] icon is on the bottom right corner, when there is the prompt green 

showing on the software, it means the communication is ok , and you can use the software to control the device now.

Note

If power off during communication, should close the port , by first, and plug in out of the USB and do communication.

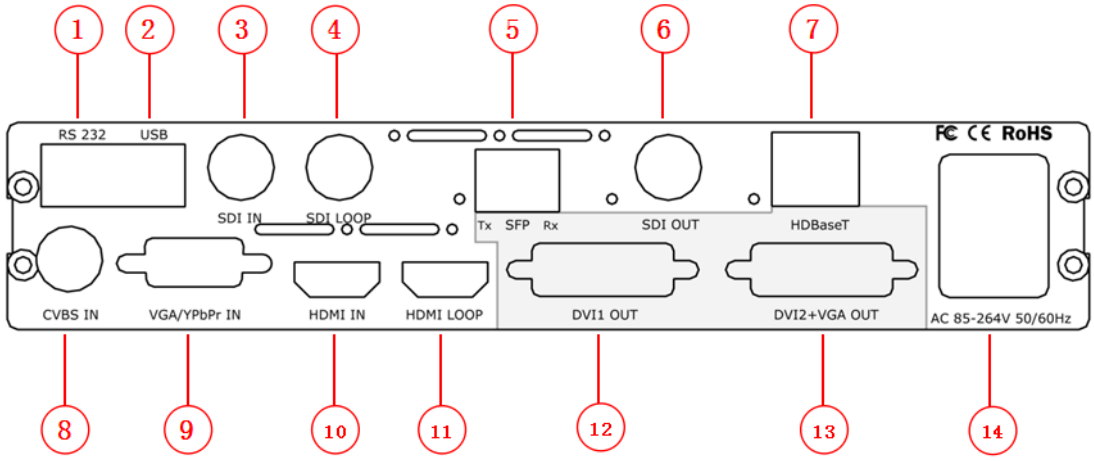
6. System Setup and Operations

In This Chapter

This chapter provides comprehensive instructions for system setup and operations. The following topics are discussed:

- Interface and Input Signal Option
- How to Confirm the Device is in Normal Operation
- How to Do Customized Output Resolution
- How to Realize Single Image Switching
- How to Set up the PIP
- How to Set up the Size and Position of the Single Image
- How to Set up Image Zoom
- How to Realize the Screen Size Setting
- How to Use Black Out
- How to Realize the Text Overlay setting
- How to Realize the Freeze and the Live Image Switching
- How to Save the Parameter
- How to Load the Saved Parameter

Interface and Input Signal Option



NO	INTERFACE	NO	INTERFACE
1	RS232 Interface	8	CVBS Input BNC port
2	USB Interface	9	VGA Input DB15 port
3	3G-SDI input BNC CVBS port	10	HDMI Input
4	SDI Loop Out	11	HDMI Loop Out
5	Fiber Output	12	DVI Output DVI-I
6	SDI Output	13	DVI+VGA DVI-I Output
7	HDBaseT Output	14	Power

12. DVI1 have default the main image output , use for connecting the sending card of LED display, VSP 168HD supports resolution format as following:

800×600×60, 1024×768×60, 1024×768×75, 1280×720×50, 1280×720×60, 1280×768×60, 1280×800×60, 1280×1024×60, 1360×768×60, 1366×768×60, 1400×1050×60, 1440×800×60, 1440×900×60, 1600×1200×60, 1680×1050×60, 1920×1080×50, 1920×1080×60, 1920×1120×60, 1920×1200×60, 2048×1152×60, 2560×812×60, 2560×816×60.

Note

Same as MENU →OUTPUT→ FORMAT

13. DVI2 + VGA output, output DVI video signal or VGA video signal, connect the display or other device with DVI or VGA interface, and output the signal by DVI-I interface. Support resolution format as following: 800×600×60, 1024×768×60, 1024×768×75, 1280×720×50, 1280×720×60, 1280×768×60, 1280×800×60, 1280×1024×60, 1360×768×60, 1366×768×60, 1400×1050×60, 1440×800×60, 1440×900×60, 1600×1200×60, 1680×1050×60, 1920×1080×50, 1920×1080×60, 1920×1120×60, 1920×1200×60, 2048×1152×60, 2560×812×60, 2560×816×60.

3. 3G-SDI（BNC Port）Can receive video signal from HD player and radio processing equipment, connect SDI interface via 75 ohms BNC port.

8. CVBS (BNC Port）Can receive standard video signal from players, cameras etc. Input supported resolution 480i and 576i via BNC. Supported standards include: PAL, NTSC and SECAM.

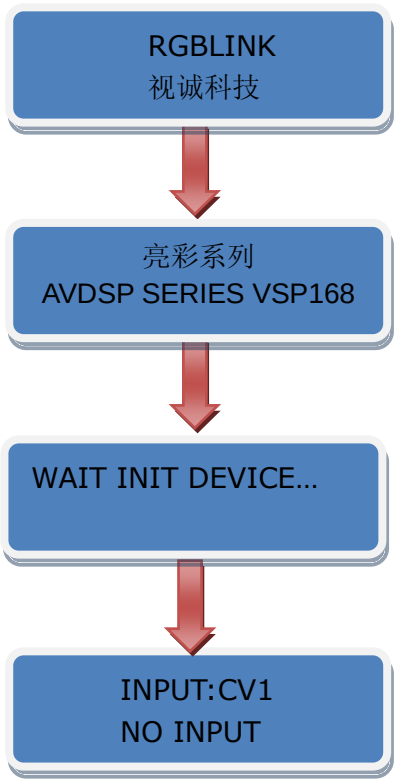
9. VGA (DB15 Port）Can support HD player, computer, video signal. Through the DB15 interface input signal.

10. HDMI Input the video signal from HD player, DVD, computer, set top box and hard disk, etc.

14. Power： Power has been already supplied for video processor.

How to Confirm the Device is in Normal Operation

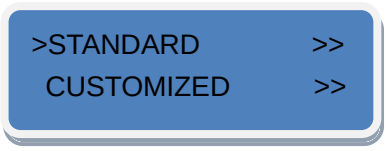
1. Firstly, make sure plug into the power cord.
2. After power on, the fans running, and scan the button.
3. After scanning, the device is in start state, the LCD module show as follows:



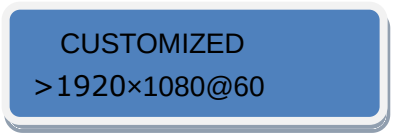
4. After start, the equipment is default load SAVE1 parameter, CV1 key light is on, and the device is in normal working.

How to Do Customized Output Resolution

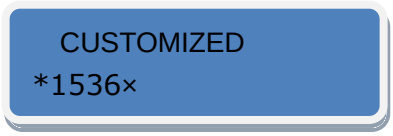
Push [MENU] button to enter the menu items, turn knob and go to <OUTPUT FORMAT>, push knob and confirm to go into the <OUTPUT FORMAT> menu, the LCD module show as following:



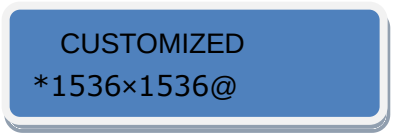
Push the knob and go into <CUSTOM> menus:



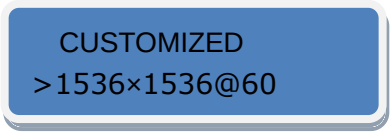
Turn knob on each digital position, and change the value of the digital by the digital buttons on the front panel. For example, input 1536 as following:



After the digital, push Knob will add *, means before the * is the horizontal size. Same operation for vertical size, for example input1536 as following:



After the digital, push the Knob will add @, means before the @ is the vertical size, and after the @ is the refresh rate. Only digital 50 or digital 60 supports for the refresh rate. Use the digital buttons to finish the settings, . For example to input refresh rate 60.



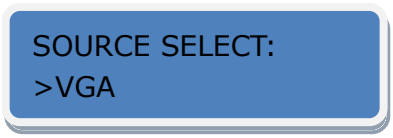
After input all the values, push knob to enable VSP 168S to output this resolution. VSP 168S will take 5 to 10 seconds to enable this output resolution.

Note

All the resolution inside the value 2048 x 1152 x 60 = 141557760 can support. For example: 1) 1536x1536x60=141557760 is OK. 2) 2560x1536x60=235929600 is too big, can not support. 3) 2560x1152x50 is OK.

How to Realize Single Image Switching

Boot the system default CV1 to the current input source, if need seamless switching other source such as VGA, push VGA button, LCD module show as follows:



CV1 button light turns off after pushing VGA button. VGA button light is on if the VGA signal is effective and stable. And if the VGA signal is invalid or no input, DVI button light will flash.

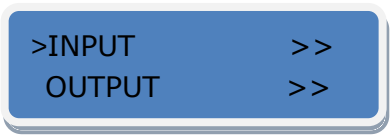
Note

Seamless switch: means signal switch will not appear any flash point, black, shaking or delay

How to Set up the PIP

Enable the PIP function, the operations are as follows:

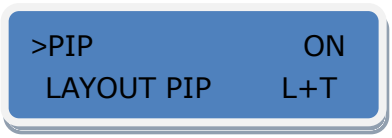
1. Push [MENU] button to enter the menu items.



2. Turn the knob, choose <OUTPUT>.

3. Push the knob to confirm, turn the knob again, choose <PIP>.

4. Push the knob to confirm, turn the knob, choose “ON” and confirm, and enable the PIP function.



LAYOUT: Can choose PIP layout, the corresponding results are as follows:

PIP L+T PBP L+R PBP T+B

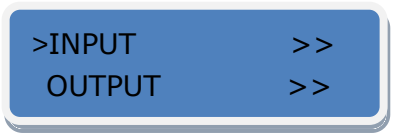
SWAP IMAGE: It can set PIP to swap exchange, when choose ON, it can realize the IMAGE A and IMAGE B exchange.

ALPHA: Can set the image transparency, the regulating range is among 0 to 16.

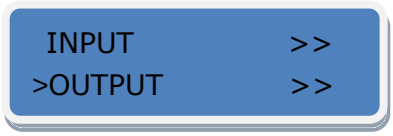
SELECT: Can choose to set the size or position of IMAGE A or IMAGE B Individually.

How to Set up the Size and Position of the Single Image

1. Push [MENU] button to enter the menu items.

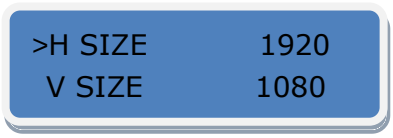


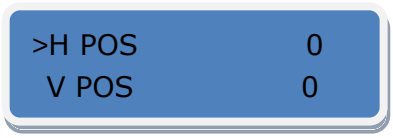
2. Turn the knob, choose <OUTPUT>.



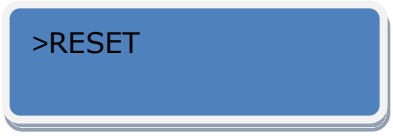
3. Push the knob to confirm, turn the knob again, choose <SCALE>.

4. Push the knob to confirm, and enter to the <SCALE> items, turn the knob, user can adjust the following items by knob or number buttons.





5. If image quality distorts by improper operation, it can be recover by reset.



How to Set up Image Zoom

The image can be zoom in horizontal or vertical separately, to meet the special effects required.

Push the [MENU] button to go into the menu items, turn the knob and choose <INPUT>, push the knob to confirm. Turn the knob, and choose <ZOOM>, show the menus as following:

V UP--Zoom in vertical and the image will be zoom in to the top direction from its bottom.

V DOWN--Zoom in vertical and the image will be zoom in to the down direction from its top.

V UP/DOWN--Zoom in vertical but in both top and down direction from its middle.

H LEFT--Zoom in horizontal and the image will be zoom in to the left direction from its right.

H RIGHT--Zoom in horizontal and the image will be zoom in to the right direction from its left.

H LIFT/RIGHT--Zoom in horizontal but in both left and right direction from its middle.

CENTER--Zoom in 4 corner direction from center.

RESET--If image quality distorts by improper operation, it can be recover by reset.

How to Realize the Screen Size Setting

VSP 168HD supports the screen parameters to meet the requirement where user want to switch between scale screen size and full display size (like monitor). This is only enable for a single display window. Following is an example of a screen size is1408 x 832.

Operator can defined the VSP 168HD output resolution from standard output resolution list or customized the output resolution which is higher than 1408 x 832. For this application 1440x900 is an example:

Push the [MENU] button to go into the menu items, turn the knob and choose <OUTPUT>, push the knob to confirm, then turn the knob and choose <SCREEN>, push the knob and goes into the screen menus as following:

H SIZE--Horizontal pixels, turn knob or use the digital button to input the value1408.

V SIZE--Vertical pixels, turn knob or use the digital button to input the value 832.

H POS--Horizontal position, default value is 0, set the value as the way of H SIZE and V SIZE.

V POS--Vertical position, default value is 0, set the value as the way of H SIZE and V SIZE.

MODE-- Mode option, choose SCREEN SIZE.

How to Use Black Out

Black out description:

Black signal realizes one-key-touch to the black screen.

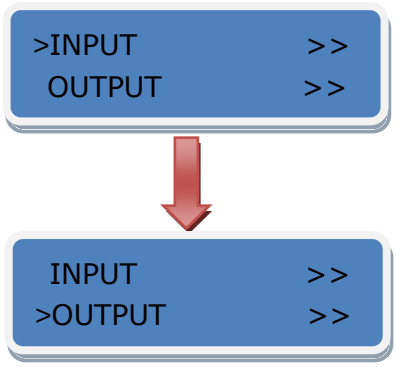
VSP 168HD black provides effect processing when output, Black switching with fade in fade out effect. The operation is as below:

Push [BLACK] button, and the output turns to BLACK screen with fade in fade out effect.

As shown below:

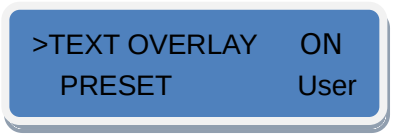
How to Realize the Text Overlay Setting

1. Push [MENU] button, turn the knob, choose <OUTPUT>:



2. Turn the knob, choose <TEXT OVERLAY> and enter <TEXT OVERLAY>, push the knob to confirm.

3. Turn the knob, choose <TEXT OVERLAY> mode, choose “ON”, TEXT OVERLAY function open.



4. Push [MENU], return to <TEXT OVERLAY>, turn the knob, LCD display displays menu options, select 13 modes in [PRESET], or select BLEND, which includes two modes:

   Mode 1: Graphic content locate at the top and is non-transparent, background transparency is controlled by double-picture transparency.

   Mode 2: Graphic content is controlled by double-picture transparency, the background is completely transparent.

   Turn the knob and choose the mode.

5. Push the [MENU] button, return to <TEXT OVERLAY>, turn the knob, choose ABOVE/BELOW to select the layer position for IMAGE B.

6. Push the [MENU] button, return to <TEXT OVERLAY>, turn the knob, choose BLEND LEVEL, and set the image display transparency, regulating range between 0~16.
7. Push the [MENU] button, return to <TEXT OVERLAY>, turn the knob, choose the color value:

   RED: The value range of color RED that to be set, regulating range between 0~255.

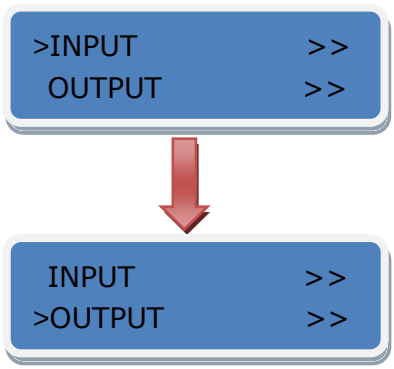
   GREEN: The value range of color GREEN that to be set, regulating range between 0~255.

   BLUE: The value range of color BLUE that to be set, regulating range between 0~255.
8. At the same time, user can view the effect through the screen, to get a better setting.

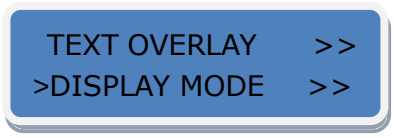
Note: All the above settings are available only for IMAGE B.

How to Realize the Freeze and Live Image Switching

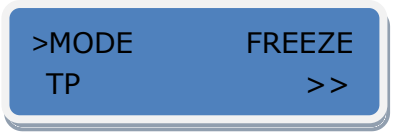
1. Push the [MENU] button, turn the knob and choose <OUTPUT>.



2. Turn the knob, choose <DISPLAY MODE>, choose <MODE>, push the the knob to confirm.



3. Turn the knob, choose FREEZE, to freeze the current live image.



4. Turn the knob again, choose LIVE, the current freeze image is switched to live image.

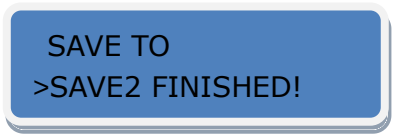
Note

In PIP mode, the Image A and Image B can be frozen or live at the same time.

How to Save the Parameter

Save user mode to the customer for different scene directly call. Leave out the edit operation inconvenience, VSP 168HD provides ten save parameters.

1. Push the [SAVE] button, and start the SAVE function.
2. Turn the knob, select the location that need to save, for example, save to SAVE2, choose SAVE2 and confirm, and save the parameter finished.



Note

Same as MENU→ SAVE SETUP →SAVE TO

How to Load the Saved Parameter

Save user mode is for user for different scene directly call. Leave out the edit operation inconvenience, VSP 168HD provides ten save parameters.

1. Push the [LOAD] button, and start the LOAD function.
2. Turn the knob, select the location that need to load, for example, load from SAVE1, choose SAVE1 and confirm, and load the parameter finished.

Note

Same as MENU → SAVE SETUP →

LOAD FROM.

7. Common Questions and Solutions

In This Chapter

This chapter provides the common questions and solution for the video processor. The following topics are provided:

- No Output in LED Display
- Flash Point in LED Display Output
- LED Display only Displays Part of the Image
- No Display in the Second Half Part of LED Display
- Left Screen Appears Two Black Sides
- All Key Lights Light on Simultaneously

No Output in LED Display

Confirm If There is Any Input Signal

Push [MENU] button to find "INPUT" and check whether the input signal is normal, if there is no input signal, check the front-end signal lines, and please note to do dual display or extended in computer, user can enter other format signals to view in the same operation.

Confirm If Signal Output

Find a belt VGA input (best for DVI) display, connect to the corresponding output port of processor, and check whether the signal is correct on the monitor. If not display properly, please check whether there is input signal, or if input wire interface is taken tight, output wire interface is picked up tightly.

Flash Point in LED Display Output

Confirm If Monitor Output is Normal

Find a belt VGA input (best for DVI) display, connect to the corresponding output port of processor, and check whether the signal is correct on the monitor. If display normally shows and no flash point, please check whether DVI outlets put tight. If display flashes point, please judge if input signal, wire, and interface are normal.

LED Display Only Displays Part of the Image

Signal Needs to Scale

Push **[SCALE]** button in the processor and knob to adjust the actual screen size of the screen, including the "V Size", "H Size", “V Pos”, “H Pos” and "Reset", the push the knob to confirm.

No Display in the Second Half Part of LED Display

Resolution is Insufficient

Please make sure the points of the screen width and height, choose the resolution that bigger than screen width by push button **[MENU]** and choose OUTPUT FORMAT, then push the knob to confirm.

Left Screen Appears Two Black Sides

Adjust DE Deviation

Adjust the DVI output and DE migration of the processor, push the [MENU] button, choose "OUTPUT" and find the corresponding output name, such as "DVI1 OUT ADJUST", and find "DVI1 DE" again, make an adjustment for corresponding horizontal and vertical DE, please remember to save to the corresponding channel after setting up, save to SAVE1 by default.

All Key Lights Light on Simultaneously

Check If Dial Switch is Normal

Shut the power, check if red dial switch near CV are upward. Reboot if it faces down, and reboot. The function of the red dial switched is mainly upgrade.

A. Specification

CVBS BNC Input	
Number of Inputs	1
Supported Standards	PAL/NTSC
Signal Level	1Vpp±3db (0.7V Video+0.3v Sync) 75 ohm
Multiplex	480i,576i
VGA DB15 Input	
Number of Inputs	1
Connector	Standard DB15 Socket
Supported Standard	VGA-UXGA
Signal Level	R、G、B、Hsync、Vsync:0 to1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm black level：300mV Sync-tip：0V
Supported Resolution	1024×768×60, 800×600×60, 640×480×60, 1280×720×60, 1280×800×60, 1280×960×60, 1280×1024×60, 1440×900×60, 1400×1050×60, 1600×1200×60, 1680×1050×60, 1920×1080×60, 1366×768×60
HDMI Input	
Number of Outputs	1
Connector	HDMI standard type A interface
Supported Resolution	SMPTE：625/25 PAL, 525/29.97 NTSC, 625/50p PAL, 525/59.94p NTSC 720p50,720p59.94/60,1080i50,1080i59.94/60 VESA：800×600×60Hz，1024×768×60Hz，1280×768×60Hz，1280×1024×60Hz，1600×1200×60Hz，1920×1080×60Hz，1920×1080×50Hz
Embedded Audio Channels	Choose one from the two inputs
Format Standard	HDMI 1.3
3G-SDI Input	
Number of Inputs	1
Connector	BNC interface
Transmission speed	19.4Mbps~1.5Gbps
Supported Standard	ITU-R BT.656,ITU-R BT.601,SMPTE 259M, SMPTE 292, SMPTE 297
Balance	Belden 1694A 100m self-adaptive 3G,200m self-adaptive 1.485G,350m self-adaptive 270Mbps
SDI Loop Out	

Number of outputs	1
Connector	BNC interface
Supported Standard	ITU-R BT.656,ITU-R BT.601,SMPTE 259M, SMPTE 292, SMPTE 297
Equalization	Belden 1694A 100m HD 1.485G, 300m SD 270Mbps
DVI Output	
Number of Outputs	2
Connector	Standard DVI-I Socket
Signal Level	TMDS pw, 165MHz bandwidth
Supported Resolution	VESA: 800×600×60, 1024×768×60, 1024×768×75, 1280×720×50, 1280×720×60, 1280×768×60, 1280×800×60, 1280×1024×60, 1360×768×60, 1366×768×60, 1400×1050×60, 1440×800×60, 1440×900×60, 1600×1200×60, 1680×1050×60, 1920×1080×50, 1920×1080×60, 1920×1120×60, 1920×1200×60, 2048×1152×60, 2560×812×60, 2560×816×60
VGA Output	
Number of Outputs	1
Connector	Standard DB15 Socket
Supported Resolution	VESA: 800×600×60, 1024×768×60, 1024×768×75, 1280×720×50, 1280×720×60, 1280×768×60, 1280×800×60, 1280×1024×60, 1360×768×60, 1366×768×60, 1400×1050×60, 1440×800×60, 1440×900×60, 1600×1200×60, 1680×1050×60, 1920×1080×50, 1920×1080×60, 1920×1120×60, 1920×1200×60, 2048×1152×60, 2560×812×60, 2560×816×60
Signal Level	R、G、B、Hsync、Vsync:0 to1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm black level: 300mV Sync-tip: 0V
SDI Output	
Number of outputs	1
Connector	BNC interface
Signal level	800mV±10%
Supported Standard	480i, 1080i50/59.94/60
Equalization	Belden 1694A 100m HD 1.485G, 300m SD 270Mbps
SFP Fiber Output	
Number of outputs	1
Connector	LC interface
10 Gigabit single-mode 10 km optical fiber module	
Wavelength of Light	1310nm

Transmission	
Transmission Rate	10G bps
Transmission Distance	10km
Transmission	Single mode twin-core
Hot Plug	Support
10 Gigabit multimode 300m optical fiber module	
Wavelength of Light Transmission	1270nm
Transmission Rate	10G bps
Transmission Distance	300km
Transmission	Multimode twin-core
Hot Plug	Support
HDBaseT Output	
Number of outputs	1
Connector	RJ45 Interface
Transmission Rate	10G bps
Transmission Distance	300m
Standard	HDBaseT 1.0
Function	
Input channel configuration	Support each input channel signal programming configuration
PIP	Support PIP、PBP for any two inputs
Audio sync switch	support
Extras	
Communication	RS232 TCP/IP
Power Supply	85-264V 2.1A IEC-3
Working Environment	0°C~45°C
Stored Environment	10% to 90%
Product Warranty	3 years parts and labor warranty

B. Contact Information

Warranty:

All video products are designed and tested to the highest quality standard and backed by a full 3 years parts and labor warranty. Warranties are effective upon delivery date to customer and are non-transferable. RGBlink warranties are only valid to the original purchase/owner. Warranty related repairs include parts and labor, but do not include faults resulting from user negligence, special modification, lighting strikes, abuse(drop/crush), and/or other unusual damages.

The customer shall pay shipping charges when unit is returned for repair.

Headquarter: S603~604 Weiye Building Torch Hi-Tech Industrial Development Zone Xiamen, Fujian Province, P.R.C.

- **Tel:** +86-592-5771197
- **Fax:** +86-592-5771202
- **Customer Hotline:** 4008-592-315
- **Websites:**
  - ~ http://www.rgblink.com
  - ~ http://www.rgblink.cn
- **E-mail:** support@rgblink.com

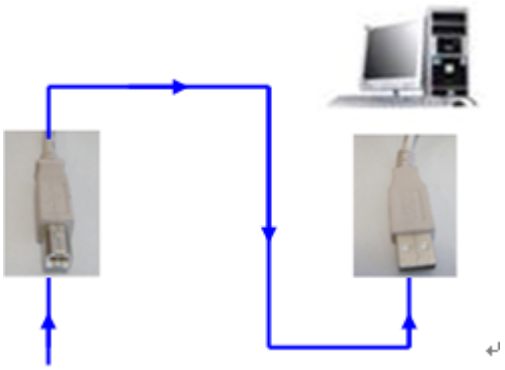
C. Software Upgrade

The VSP 168HD software upgrade steps are as follows:

1. Communication Firmware Upgrade

Upgrade by copy the file, the name of the file is: WEBSE. Bin, and upgrade steps are as follows:

(1) Connect the USB interface of VSP168HD to the computer with a USB cable.



(2) Plug in the power cord, and make sure the device is in normal operation.

(3) Push MENU button, and enter [USB UPGRADE] option, operation steps are: MENU→SYSTEM→USB UPDATA→SEL.

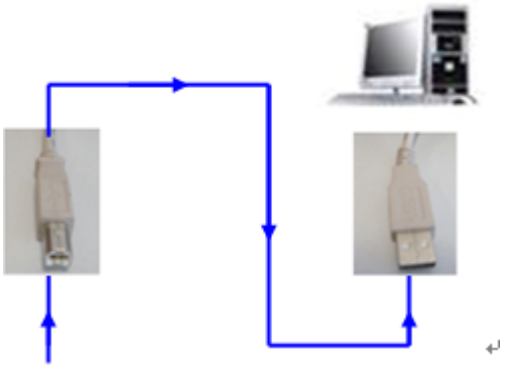
(4) Open the USB drive that plug into the computer, and delete the "firmware. Bin" file in the USB drive, then copy the MCU file "WEBSE. Bin" of VSP168HD to the USB drive, program loading is complete after the file has been copied.

(5) Restart the device, and enter the menu to check if the version is right, factory reset is completed. Operation steps are: MENU→SYSTEM→SYSTEM INFO→MCU VER.

2. CORE Panel Upgrade

Upgrade by copy the file, the name of the file is: VIDEO.fvb, and upgrade steps are as follows:

(1) Connect the USB interface of VSP 168HD to the computer with a USB cable.



(2) Plug in the power cord, and make sure the device is in normal operation.

(3) Push MENU button, and enter [USB UPDATE] option, operation steps are: MENU→SYSTEM→USB UPDATA→SEL.

(4) Open the USB drive that plug into the computer, and delete the "firmware. Bin" file in the USB drive, then copy the MCU file "VIDEO.fvb" of VSP168HD to the USB drive, program loading is complete after the file has been copied.

(5) Restart the device, and enter the menu to check if the version is right, factory reset is completed. Operation steps are: MENU→SYSTEM→SYSTEM INFO→MCU VER.